NÁVOD NA POUŽITIE • NÁVOD NA POUŽITÍ • USER'S MANUAL
HASZNÁLATI UTASÍTÁS • BEDIENUNGSANLEITUNG • INSTRUKCJA OBSŁUGI
инструкция по использованию

AB IPBox 9000HD

Linux Based Digital HDTV Receiver
DVB-S2/DVB-S/DVB-C/DVB-T as second tuner

TESTED IN EU
before dispatching

CE DVB Digital Video Broadcasting RoHS COMPLIANT

MADE IN KOREA

SK ☐ CZ ☐ EN ☐ HU ☐ DE ☐ PL ☐ RU ☐ OTHERS ☐

Connecting people to digital home entertainment

0. INTRODUCTION

Welcome to the world of new **High Definition Digital Receiver** that will make your life richer and closer to your dream. Before using your new receiver, we recommend you to read this manual carefully for your own safety and correct operational manual. This product is fully compliant with the DVB standards and transmits digital broadcasting service directly to your TV
The STB is easy to use and adaptable for future upgrade. The software is to be upgraded continuously to improve the function.

1. SAFETY INFORMATION

Please read the following recommended safety caution carefully for your safety

"DANGER OF THE HIGH VOLTAGE AND RISK OF ELECTRIC SHOCK!"

■ Power Supply: 110-220V AC 50/60Hz
■ The socket-outlet shall be installed near the equipment and shall be easily accessible.
■ Allow clear space around the STB for sufficient ventilation.
■ Never place the STB on soft furnishing or carpet.
■ Do not stack other electronic equipment on top of the STB.
■ Use a soft/dry cloth and a mild solution to clean the exterior of the STB.
■ Never allow liquids. The inside of the STB shall not be exposed to dripping, spray or other objects filled with liquids.
■ Do not use any attachments that are not recommended.
■ Do not allow the unit to be exposed hot, cold or humid conditions.
■ Service should be carried out only at a qualified service agent.
■ Do not connect or modify cables when the STB is plugged in.
■ Do not remove the cover.

Warning:

AB-COM s.r.o. company does not hold any responsibility for any harms caused by using unofficial or illegal software.
AB-COM s.r.o. company warns that watching of european Pay TV channels on European Union territory without paying all corresponding abonent fees is illegal.
If anybody uses any of products of AB-COM s.r.o. company in order to watch Pay TV channels without correct paying he does it on his own responsibility and and will carry all potential legal effects.

2. HOW TO USE THIS MANUAL

This manual provides complete instructions for installing and using the STB. The following symbols will be served as follows.

Symbol	Explanation
1. MENU (Capital & Bold)	Represents Main Menu category.
1.1. Menu(Bold)	Represents a sub-category of the main menu
1.1.1. Menu	Indicates a selectable option in a sub-category.

Press the MENU key on the RCU (Remote Control Unit) to enter into the main menu.
In some menus, you are asked to put the PIN (Personal Identification Number) code as a password.

Factory default password is '0000'.

2.1 How to move the cursor

Use the Navigation Buttons

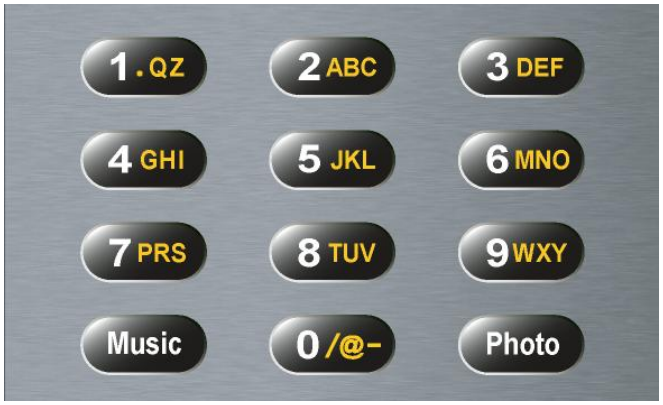
UP and Down Direction button: Navigate the cursor Upwards and Downwards.

Left and Right Direction button: Navigate the cursor Left and Right

2.2 How to select an option

OSD(On Screen Display)- menus support to navigate the functions or options with these buttons. Use these buttons to reach the targeting option or function. To select the desired option or function, press OK button.

2.3 How to use the virtual keyboard

In some menus, you are asked to put alphabetical characters on the virtual keyboard. Select each alphabet character by pressing OK button. and then move the cursor on “Save” (Save key) on the virtual keyboard, and press OK button to save it.

In case of input mode “a”, the numeric buttons of RCU works alphabetically with Small letters

In case of input mode “A”, the numeric buttons of RCU works alphabetically with Capital letters

In case of input mode “@”, the numeric buttons of RCU works numerically

3. BEFORE YOU BEGIN

3.1 Advanced Features

- DVB compliant DVB-S, DVB-S2, DVB-T, DVB-C supported
- Smart tuner supported(Plug & Play)
- MPEG-2 MP@HL Video Decoder
- MPEG-4 AVC/H.264 HP@L4 Video Decoder
- DIVX supported
- MP3 decoder
- Dolby AC3 DownMix decoder
- HDMI v.1.2A with HDCP supported
- Multi-format Audio Decoder
- High Definition and Standard Definition
- DVB Common Interface (2 slots) supported
- Format resolution: 1080i, 720p, 576p
- USB 2.0(Host) supported
- USB 1.0(Client) supported
- Network Interface Supported (high speed Ethernet)
- VFD Display : Capability for display of various information
- SCPC and MCPC receivable from C/Ku-band satellites
- Channel list editing
- Favorite channel list editing
- True-color On-Screen Display (OSD)
- Full Picture In Graphic (PIG) function
- Electronic Program Guide (EPG) for on screen channel information
- Subtitle & Teletext supported
- Parental lock facility by channel and program event
- LINUX open source (some parts under the terms of GPL, accordingly expandable)

4. THE CONTENTS OF THE BOX

Please make sure that the following items are included in the Package.

■ STB main unit

■ Remote Control Unit

■ 2 Batteries (size AAA **ALKALINE**)

■ Operation Manual

5. REMOTE CONTROL UNIT (UNIVERSAL TYPE)

Switch On /

RCU respond to TV

Sub picture position in PIP mode

PIP on/off

Recall

Page up/down or Program up/down

Favorite

Book or check mark

Main Menu or previous menu

Audio mute

RCU respond to STB

Swap Picture

Sub channel list in PIP

Volume +,-

Info banner

Electronic Program

Recorded

To exit from the OSD menu

Navigation buttons or Vol+,- Ch+,-

Music

Record

Repeat

Multifeed

Slow motion with rate

Photo Album

Fast forward or random play

Pause

Playback or return to live

Alternate audio

Teletex

Subtitle

Stop

Fast reverse or random play

5.1. Programming the remote control for your TV set.

This Universal type remote control works for both TV and PVR.

There are two ways to program the remote control; Automatic Code Search and Direct Entry.

5.1.1 Using automatic code search

1. Turn on the component (TV) you want to control.
2. Press and hold the TV button until the LED (TV button) turns on red, then release the key.
3. Point the remote at the component (TV), press and release the UP (▲) button, and then wait three seconds or until the LED stops flashing.

   At this point the remote control is searching for the correct code to program. If, after three seconds, the component (TV) you want to control does not turn off, press and release UP (▲) button again to make the remote to search the next set of codes.
4. If the component you want to control does turn off; Press and release OK button, then the LED blinks three times.

5.1.2. Using direct entry method

1. Turn on the component (TV) you want to control.
2. Locate the Code List (refer to code list on the page 59). Find your TV brand that you want to control.
3. Press and hold the TV button until the LED on the remote control turns on red, then release the key.
4. Enter 3-digit code from the code list, then the LED blinks three times.
5. If you get no response, repeat these steps using the next code listed for your TV brand until the component responds to the remote control command.

5.1.3. Locking the volume control.

Locking the volume controls to a single device makes it easier to control volume, without having an unexpected volume change. If you lock the remote's volume controls to the TV set, you will be always able to change the volume to the level you want, without having adjusting it twice on multiple devices.

If you want to lock the volume for the TV system;

1. Press and hold the **STB** component key until the LED on the remote control turns on.
2. Enter 3-digit code, **9 9 9 .**
3. Press and release the **STB** component key, then the LED blinks three times.

5.1.4. Unlocking the volume control.

If you want to unlock the volume for the **STB** component;

1. Press and hold the **STB** button until the LED on the remote control turns on.
2. Enter 3-digit code, **9 9 9** .
3. Press and release the **STB** component key, then the LED blinks three times.

NOTICE: Find the TV brand code list on the page 44.

6. FRONT PANEL CONTROL

■ Two slots for the smart cards

■ Two slots for CAM

■ MVFD (Matrix Vacuum Fluorescent Display) – displays channel name, error messages, current time and status and remote control commands

■ Power button On/Off

■ Menu Button

■ EPG Button

■ FILE Button

■ OK button

■ Right direction button (Vol +)

■ Left direction button (Vol -)

■ Up direction button (CH +)

■ Down direction button (CH -)

Note:

Cold off (Shutdown): Press and hold power button on front panel or RCU over 2 seconds.

Warm off (Standby): Press power button on front panel or RCU

Stand by mode

TV channel

Radio channel

SAT — Actual channel is satellite

TER — Actual channel is terrestrial

* If none of these symbols is highlighted then actual program is cable (DVB-C)

A file record from HDD is being playied

FILE

Recording

REC

Normal watching, timeshift or file playback

Timeshif activated on live program

TIME SHIFT

Scheduled Timer event in Standby mode.
* It does not indicate when STB is turned off

Actual channel (record) is in HD format

HD

There is a device connected to USB host

USB — Actual channel is locked or STB is locked

Actual channel is in Dolby Digital audio format

Mute function is activated

Indication of operation tuner/tuners

Tu1 Tu2

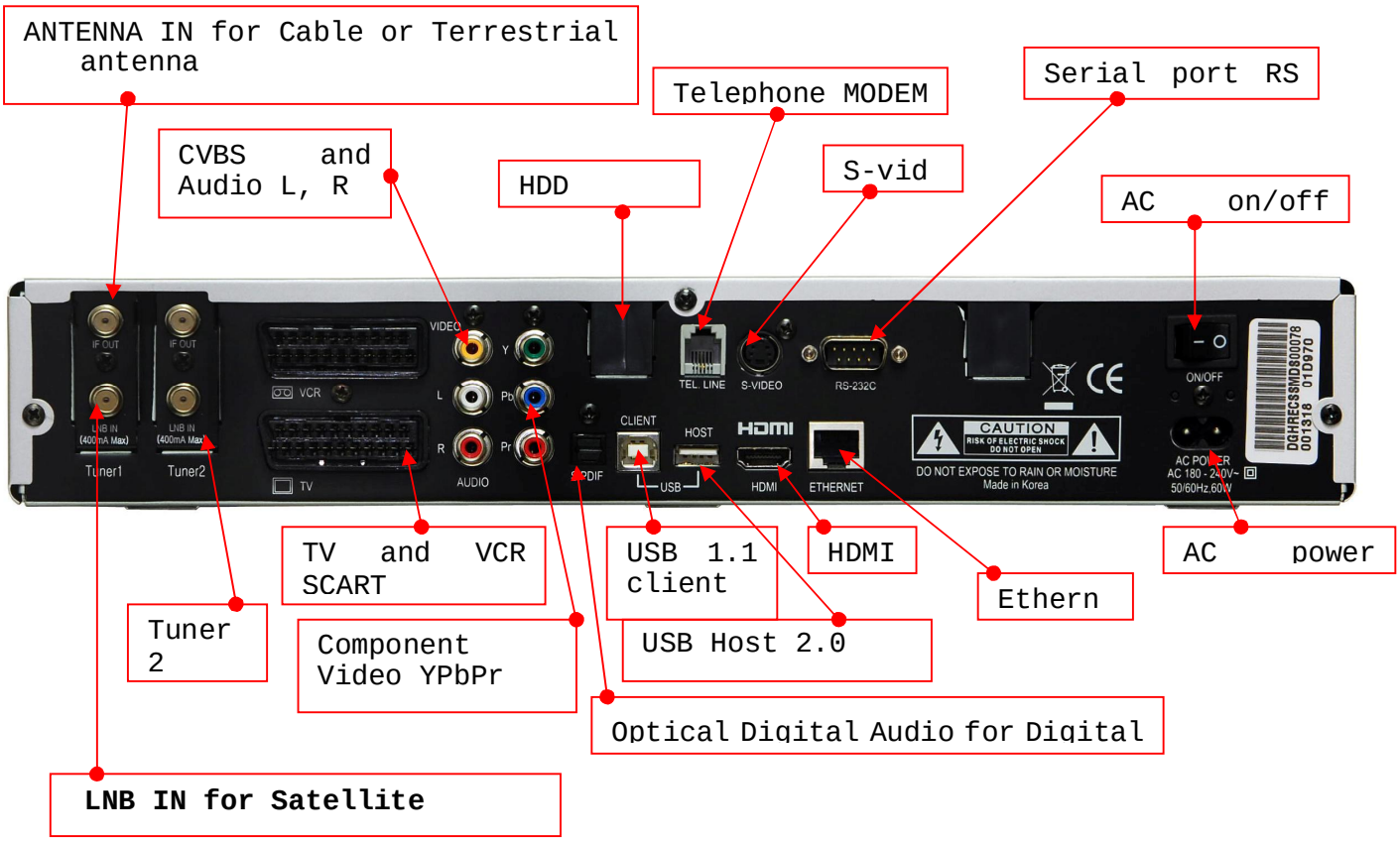
MP3 playback

Repeat of selected section

Video resolution of actual program

1080p 576ip
1080i 480ip
720p

7. REAR PANEL CONNECTIONS



Rear panel with built-in two tuners:

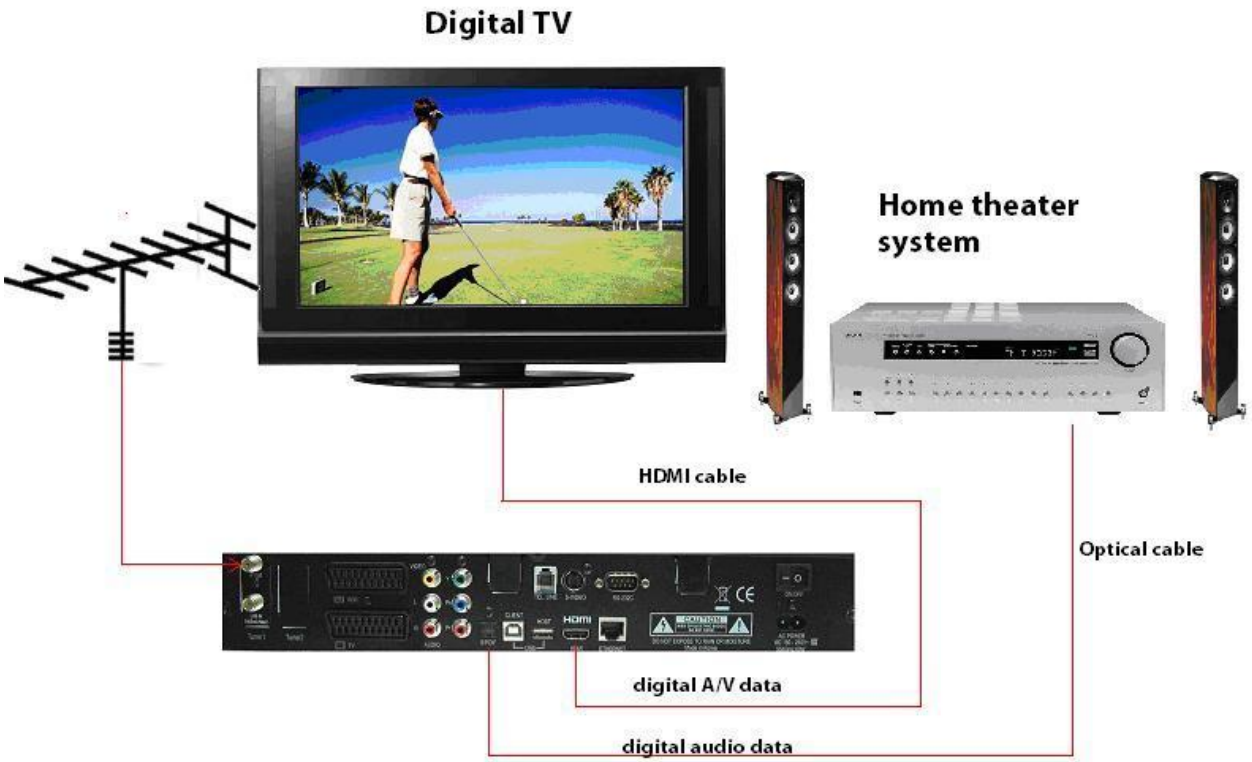
8. INSTALLATION

Most effective and common setting methods are suggested below. Please follow the instructions carefully.

8.1 Connection with Satellite dish

Analog Video : TV SCART(CVBS, YUV, RGB), RCA(CVBS), Components(Y Pb Pr), S-video(Y/C)
Analog Audio : TV SCART(L,R), RCA(L,R)
Digital Video : HDMI
Digital Audio : HDMI, S/PDIF

8.2 Connection with Terrestrial Antenna or Cable network



Analog Video : TV SCART(CVBS, YUV, RGB), RCA(CVBS), Components(Y Pb Pr), S-video(Y/C)

Analog Audio : TV SCART(L,R), RCA(L,R)

Digital Video : HDMI

Digital Audio : HDMI, S/PDIF

Connection of HD (High Definition) signal:

If you dispose of TV or other type of displey that supports High Definition resolution (marked as “HD ready” or “Full HD”) connect your STB with this display via HDMI connector. Using such a connection the video and audio signal is transferred digitally in best.
You can also use Component analog YPbPr output for transfering video signal. Audio must be connected separatelly via CINCH L/R connectors (analog – just stereo) or via optical digital S/PDIF output.

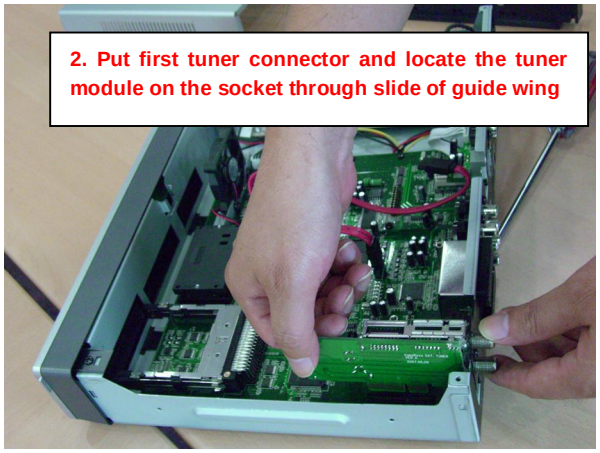
Connection of SD (Standard Definition) signal:

If you want to connect your STB with SD (Standard Definition) TV display you can use HDMI or YPbPr connectors if your TV is equipped with it (signal will be transfered in SD - 576i resolution).
You can also use other types of connections (ordered downward according to quality): TV SCART in RGB or YUV mode, S-Video (Y/C), CINCH (CVBS), TV SCART (CVBS). None of these connection supports High Definition output. If you receive HD signal and you use some of these connections finalreceived signal will be just in SD quality.
Audio signal can be connected via:
- analog stereo outputs: TV SCART(L,R), CINCH(L,R)
- digital outputs: HDMI or S/PDIF

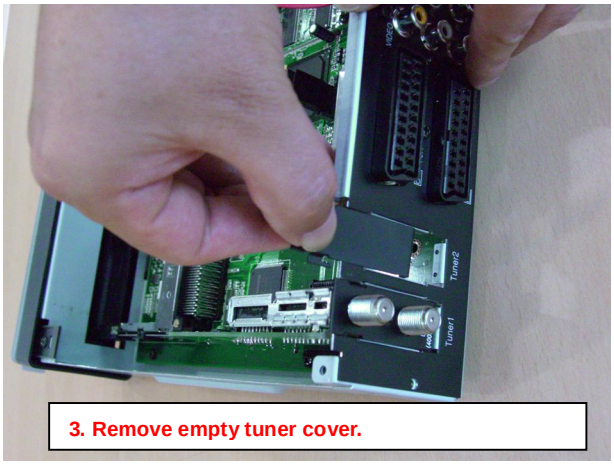
8.3. Tuner module and HDD bracket connection into the main board

The receiver supports 3,5” S-ATA HDD with no size limitation.
The receiver supports any combination of two Plug and Play tuners: DVB S, DVB S2, DVB T, DVB C.
Warning: Always reconnect power cord before unmounting the cover.

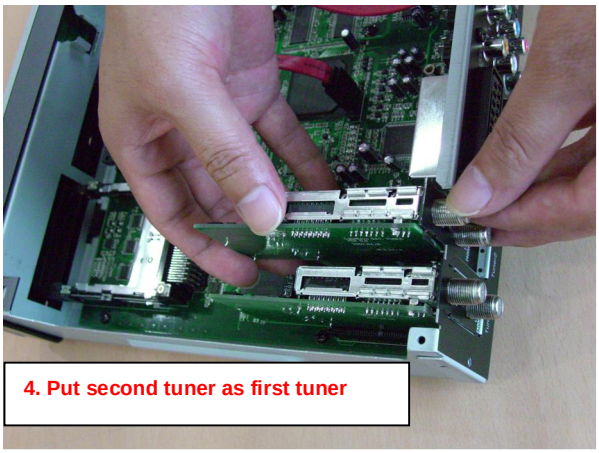
1. open the top cover



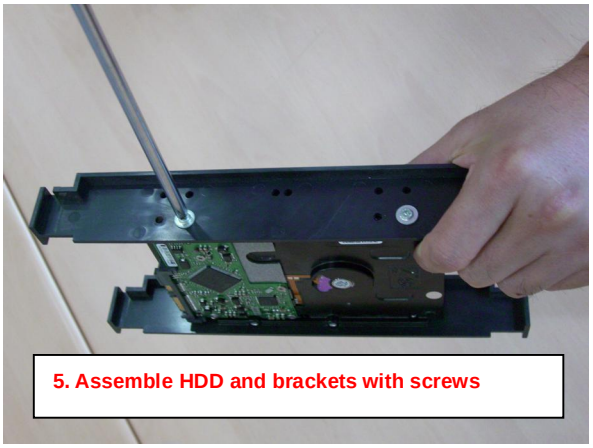
2. Put first tuner connector and locate the tuner module on the socket through slide of guide wing



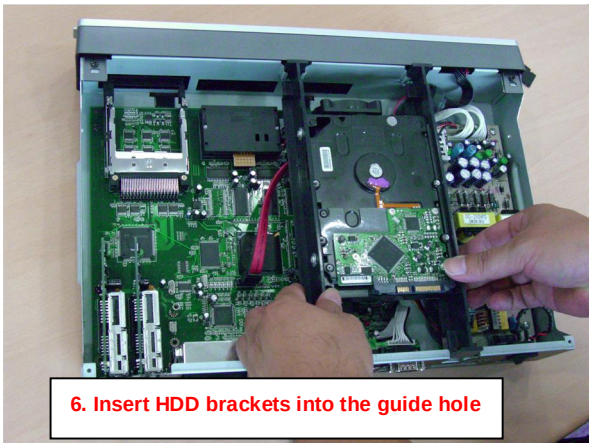
3. Remove empty tuner cover.



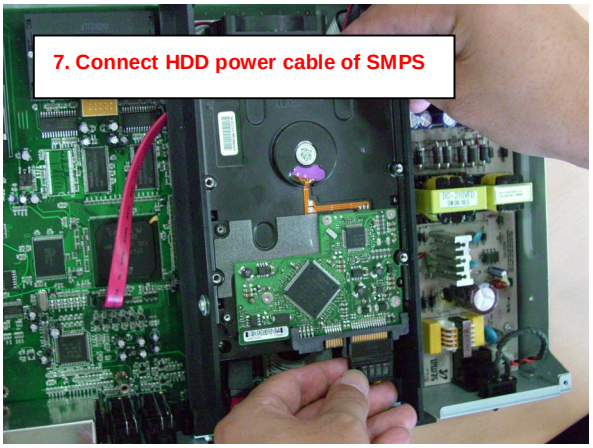
4. Put second tuner as first tuner

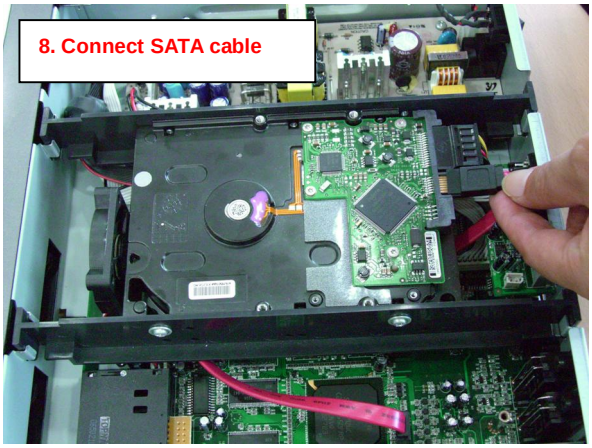


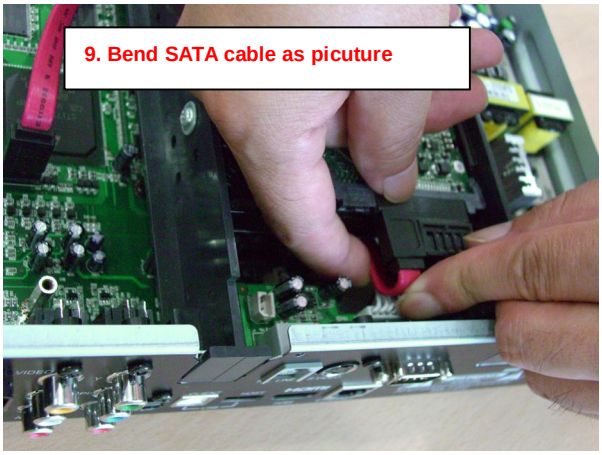
5. Assemble HDD and brackets with screws

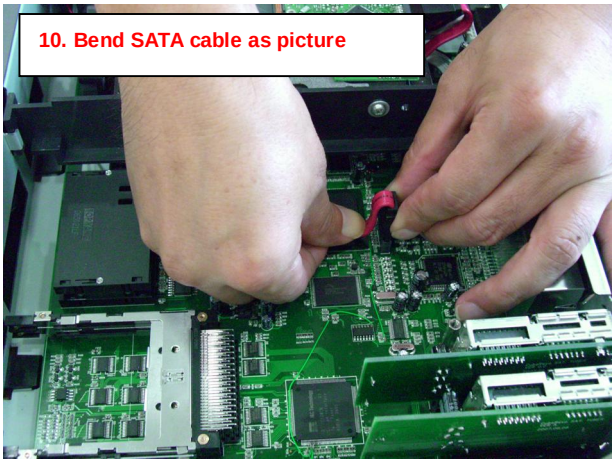


6. Insert HDD brackets into the guide hole


7. Connect HDD power cable of SMPS


8. Connect SATA cable


9. Bend SATA cable as picuture


10. Bend SATA cable as picture

11. Screw in to fix the top cover

9. BEFORE SETTING

9.1 Menu Information

Selectable lines are generally activated (highlighted). No-activated lines are not selectable.
Most of OSD- menu show short information at the bottom of the screen.

9.2 Basic Key Control

With the UP/DOWN direction button you can move the cursor upwards and downwards in the OSD (On Screen Display) menu. When you have reached the desired option or function, press the OK button to confirm your choice.
In case of changing TV channel you can only press UP/DOWN direction button.
In most of menu, you can select menu items with LEFT/RIGHT direction button.
When you want to return to the previous menu with saving the change, press the MENU Button.
When you want to exit from the current menu, press the EXIT button.

10. GET STARTED FOR THE FIRST TIME

If it is the first time using the STB, you should set parameters for system configuration and scan the channels. Follow setup procedure for scanning the channel. When you have finished the procedure, you can start watching TV or listening to the Radio.

10.1 Switch your TV and STB On.

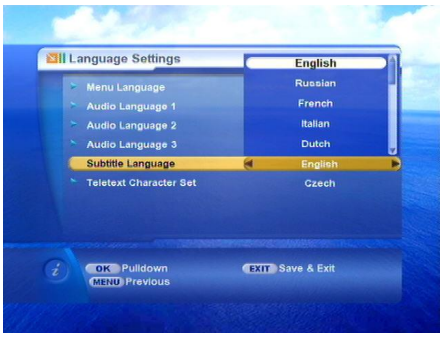
The Local Time setting menu will appear automatically.

10.2. Selecting language and Adjusting the local time.

Select Language Setting menu to set suitable language for different items - Menu language, Audio language, Subtitle language and Teletext character set. Press UP/DOWN buttons to select desired item and press OK. Use LEFT/RIGHT buttons to select desired language.

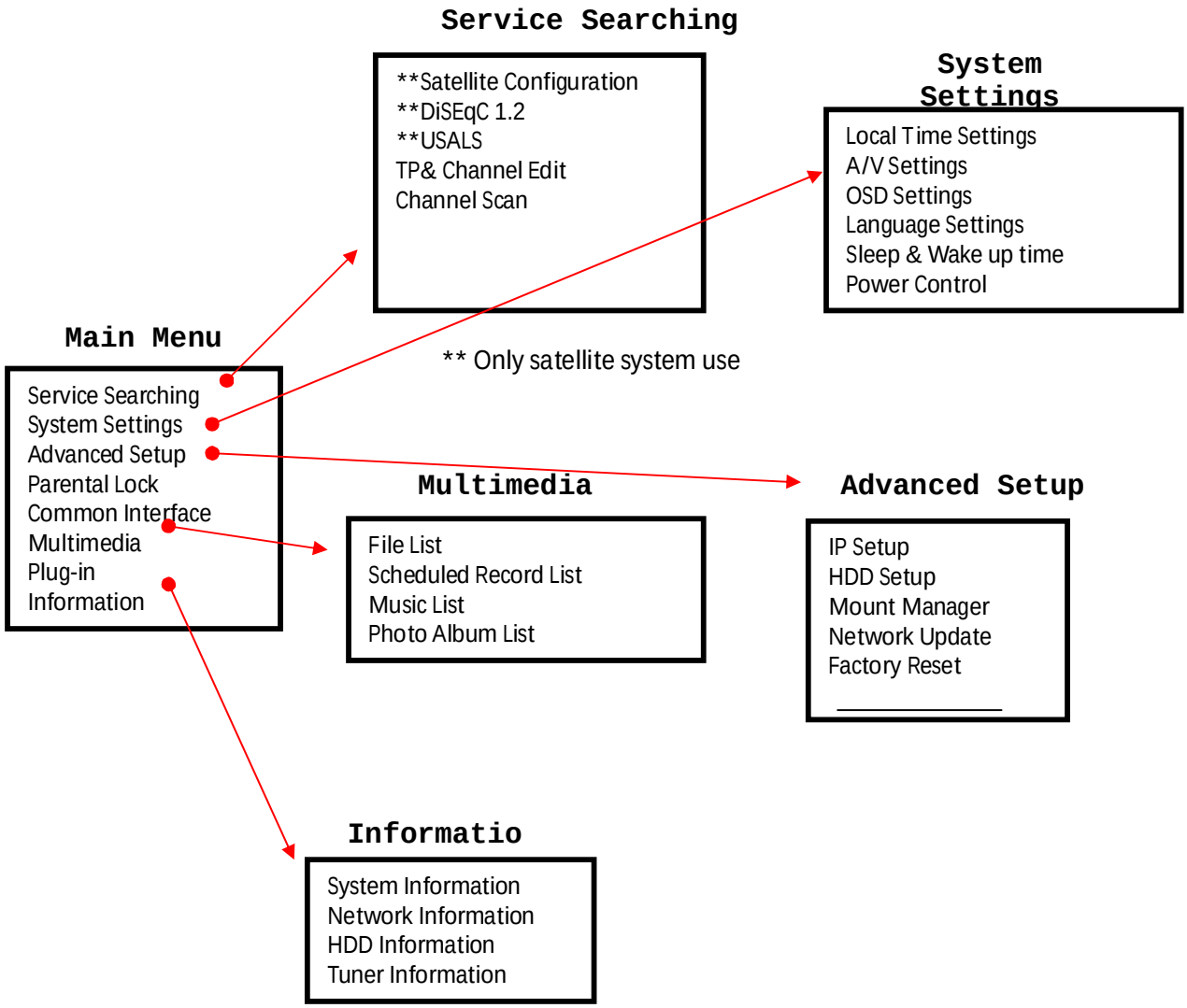
Press EXIT to enter Local time settings menu. Select proper Time zone (e.g. for Slovakia and Czech Republic: GMT + 01::00) and activate (or deacivate) Dylight Saving.

Set Time mode (12 or 24 hours) and Time setting – if you set „from SAT“ press „Time update“ and time will be set automatically from satellite. If you set „manual“ you will have to set up time and date manually.



Press EXIT to enter antenna configuration menu. Select your configuration and start scanning or press EXIT to enter Main menu.

10.3. Menu tree.



(Menu Tree)

10.4. DVB-S/S2 Satellite Configuration

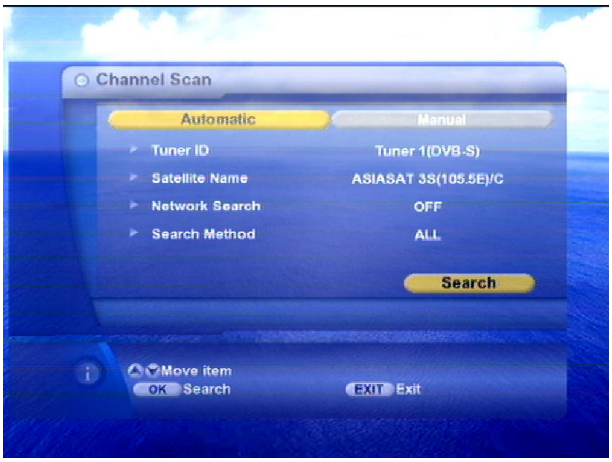
The Satellite Configuration menu will appear automatically right after adjusting the Local Time. Press OK button. Empty list of satellites appears. Press Yellow function button (Add satellite) to enter Satellite Configuration menu.

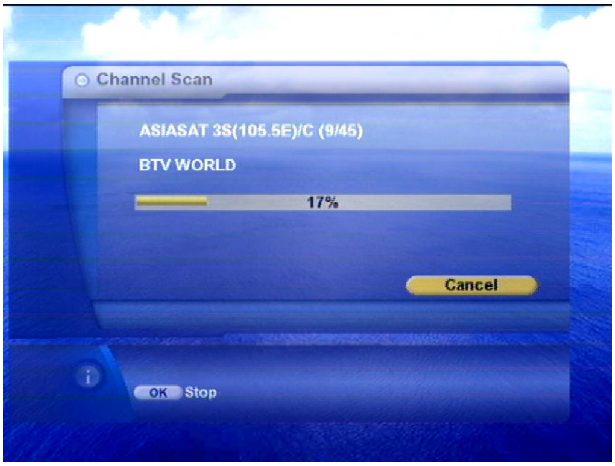
10.4.1 Setting of LNB parameters

Set each LNB parameter: SAT Name, Tuner ID, LNB Type, Local Freq, TP Freq, LNB Power, 22 KHz, Toneburst, DiSEqC Parameter, Uncomitted, DiSEqC Repeats, Swap Commands and Sequence Repeat by pressing LEFT/ RIGHT button or OK button as your LNB and dish aimed. You can see whole selectable values of each item by pressing OK button. You will see the Signal indicator as yellow and green if all values are set correctly.

10.4.2 Automatic Scanning the satellites

This is to scan all the channels of the satellites you setup in Satellite Configuration menu. Select Tuner ID and Satellite Name, Network Search option and Search Method option by pressing LEFT/RIGHT button and press OK on SEARCH to start scanning. To cancel scanning during the progress press CANCEL button. Meantime searched channels will be stored into memory.

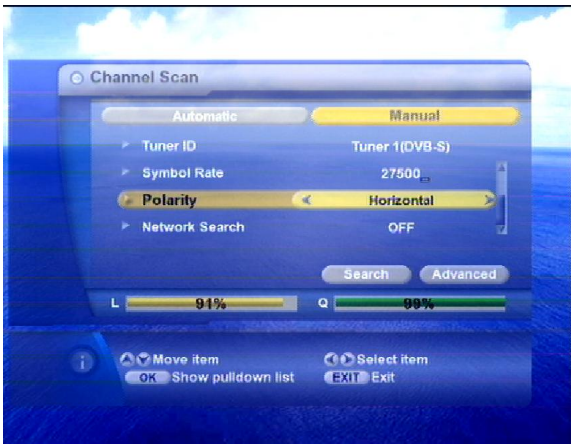




10.4.3. Manual Scanning the satellite

Select Manual field to scan channels on specific TP. Set Tuner ID, Satellite Name, Frequency, Modulation, Symbol Rate, Polarity values and Network searching.

You can press OK to check the values on Frequency and Symbol Rate menu or press NUMERIC buttons to input values directly. Press OK on Search to start scanning.



You can also start searching by pressing Blue function button.

Advanced Search :

Video PID: Enter the correct VIDEO PID value by using numeric buttons on the RCU.

Audio PID: Enter the correct AUDIO PID value by using numeric buttons.

PCR PID: Enter the correct PCR PID value using numeric Buttons.

After channel searching, channels are listed automatically. Press OK or press EXIT to leave the menu.

10.5. DVB-C Scanning the Cable

10.5.1. Reference frequency table for cable – DVB-C (Western European Standard)

Frequency Range Hyperband - PAL-G	
Channel	**Center Frequency**
S02	113±4 MHz
S03	121±4 MHz
S04	128,50±3,50 MHz
S05	135,50±3,50 MHz
S06	142,50±3,50 MHz
S07	149,50±3,50 MHz
S08	156,50±3,50 MHz
S09	163,50±3,50 MHz
S10	170,50±3,50 MHz
S11	233,50±3,50 MHz
S12	240,50±3,50 MHz
S13	247,50±3,50 MHz
S14	254,50±3,50 MHz
S15	261,50±3,50 MHz
S16	268,50±3,50 MHz
S17	275,50±3,50 MHz
S18	282,50±3,50 MHz
S19	289,50±3,50 MHz
S20	296,50±3,50 MHz
S21	306±4 MHz
S22	314±4 MHz
S23	322±4 MHz
S24	330±4 MHz
S25	338±4 MHz
S26	346±4 MHz
S27	354±4 MHz
S28	362±4 MHz
S29	370±4 MHz
S30	378±4 MHz
S31	386±4 MHz
S32	394±4 MHz
S33	402±4 MHz
S34	410±4 MHz
S35	418±4 MHz
S36	426±4 MHz
S37	434±4 MHz
S38	442±4 MHz
S39	450±4 MHz
S40	458±4 MHz
S41	466±4 MHz

Frequency Range UHF IV/V - PAL-G	
Channel	**Center Frequency**
K21	474±4 MHz
K22	482±4 MHz
K23	490±4 MHz
K24	498±4 MHz
K25	506±4 MHz
K26	514±4 MHz
K27	522±4 MHz
K28	530±4 MHz
K29	538±4 MHz
K30	546±4 MHz
K31	554±4 MHz
K32	562±4 MHz
K33	570±4 MHz
K34	578±4 MHz
K35	586±4 MHz
K36	594±4 MHz
K37	602±4 MHz
K38	610±4 MHz
K39	618±4 MHz
K40	626±4 MHz
K41	634±4 MHz
K42	642±4 MHz
K43	650±4 MHz
K44	658±4 MHz
K45	666±4 MHz
K46	674±4 MHz
K47	682±4 MHz
K48	690±4 MHz
K49	698±4 MHz
K50	706±4 MHz
K51	714±4 MHz
K52	722±4 MHz
K53	730±4 MHz
K54	738±4 MHz
K55	746±4 MHz
K56	754±4 MHz
K57	762±4 MHz
K58	770±4 MHz
K59	778±4 MHz
K60	786±4 MHz
K61	794±4 MHz
K62	802±4 MHz
K63	810±4 MHz
K64	818±4 MHz
K65	826±4 MHz
K66	834±4 MHz

K67	842±4 MHz
K68	850±4 MHz
K69	858±4 MHz

Western European Standard for QAM Boxes:

QAM Linear Channel Scan:

Start Frequency: 306 MHz (center freq. channel S21)

Stop Frequency: 858 MHz (center freq. channel K69)

Symbol Rate: 6900, 6875, 6111 kS/s (Auto/Manual, Default=Auto)

Modulation Scheme: 64/128/256 QAM (Auto/Manual, Default=Auto)

Outer FEC scheme: RS(204/188), None

Inner FEC scheme: None

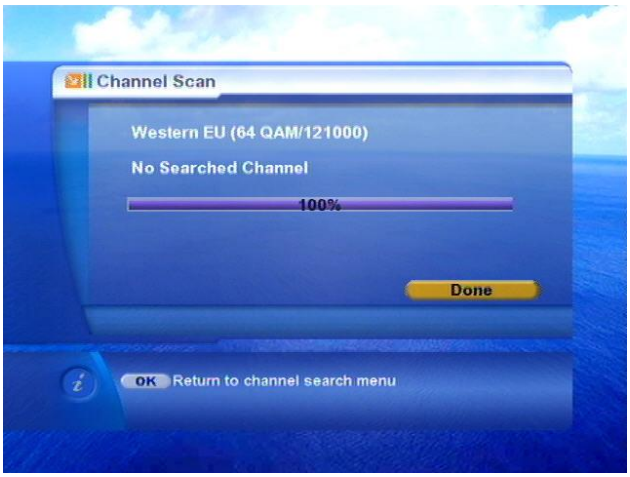
Channel Bandwidth: 8MHz or 7MHz

Spectrum shape: Inverse, Normal

10.5.2. Automatic Scanning the Cable

This is to scan all the channels of the cable. Set Cable Name, Network Search option and Search Method option by pressing LEFT/RIGHT button and press OK on SEARCH to start scanning.

After channel searching, channels are listed automatically. Press OK or press EXIT to leave the menu.



10.5.3. Manual Scanning the Cable

This is to scan channels on specific channel. Set Tuner ID, Region, Modulation, Frequency and Symbol Rate. You can press OK to check the values on Frequency and Symbol Rate on menu or press NUMERIC buttons to input values directly. Press OK on Manual Search to start scanning. If you input new channel data in this menu, the new data will be saved in the data base automatically.

After channel searching, channels are listed automatically. Press OK or press EXIT to leave the menu.

10.6. DVB-T Scanning the Terrestrial

10.6.1. Reference frequency table for terrestrial

There are three kinds of region selecting method according to frequency bandwidth.

1. Germany.
2. Australia.
3. Other countries as Western EU (U.K, Italy, France, Spain, China, Finland, Sweden).

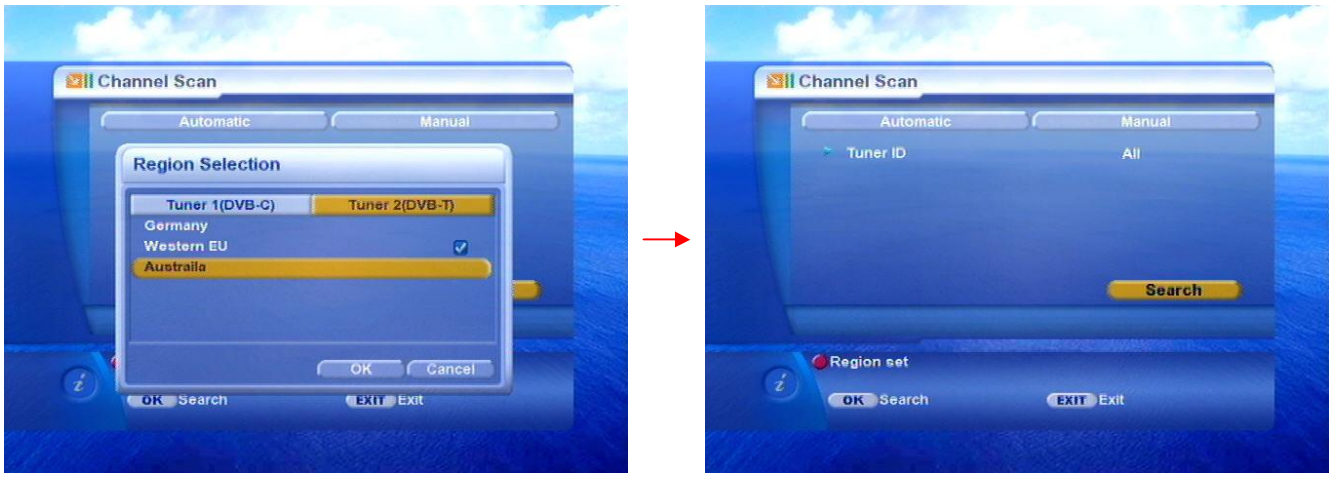
DVB-T/H Channel Frequency

Germany			U.K, Italy, France, Spain China, Finland, Sweden			Australia		
Ch.	**Frequency**	**BW**	**Ch.**	**Frequency**	**BW**	**Ch.**	**Frequency**	**BW**
1	0	7M	1	0	8M	2	0	7M
2	0	7M	2	0	8M	3	0	7M
3	0	7M	3	0	8M	4	0	7M
4	0	7M	4	0	8M	5	0	7M
5	**177,500**	**7M**	**5**	**178,750**	**8M**	**6(8)**	**177,500**	**7M**
6	**184,500**	**7M**	**6**	**186,750**	**8M**	**7(9)**	**184,500**	**7M**
7	**191,500**	**7M**	**7**	**194,750**	**8M**	**8(10)**	**191500(625)**	**7M**
8	**198,500**	**7M**	**8**	**202,750**	**8M**	**9(11)**	**198,500**	**7M**
9	**205,500**	**7M**	**9**	**210,750**	**8M**	**9A(12)**	**205,500**	**7M**

10	**212,500**	**7M**	**10**	**218,750**	**8M**	**10(13)**	**212,500**	**7M**
11	**219,500**	**7M**	**11**	**0**	**8M**	**11(14)**	**219,500**	**7M**
12	**226,500**	**7M**	**12**	**0**	**8M**	**12(15)**	**226,500**	**7M**
13	0	8M	13	0	8M	13	0	7M
14	0	8M	14	0	8M	14	0	7M
18	0	8M	18	0	8M	18	0	7M
19	0	8M	19	0	8M	19	0	7M
20	0	8M	20	0	8M	20	0	7M
21	**474,000**	**8M**	**21**	**474,000**	**8M**	**21**	**0**	**7M**
22	**482,000**	**8M**	**22**	**482,000**	**8M**	**22**	**0**	**7M**
23	**490,000**	**8M**	**23**	**490,000**	**8M**	**23**	**0**	**7M**
24	**498,000**	**8M**	**24**	**498,000**	**8M**	**24**	**0**	**7M**
25	**506,000**	**8M**	**25**	**506,000**	**8M**	**25**	**0**	**7M**
26	**514,000**	**8M**	**26**	**514,000**	**8M**	**26**	**0**	**7M**
27	**522,000**	**8M**	**27**	**522,000**	**8M**	**27**	**522,500**	**7M**
28	**530,000**	**8M**	**28**	**530,000**	**8M**	**28**	**529,500**	**7M**
29	**538,000**	**8M**	**29**	**538,000**	**8M**	**29**	**536,500(625)**	**7M**
30	**546,000**	**8M**	**30**	**546,000**	**8M**	**30**	**543,500**	**7M**
31	**554,000**	**8M**	**31**	**554,000**	**8M**	**31**	**550,500**	**7M**
32	**562,000**	**8M**	**32**	**562,000**	**8M**	**32**	**557,500**	**7M**
33	**570,000**	**8M**	**33**	**570,000**	**8M**	**33**	**564,500**	**7M**
34	**578,000**	**8M**	**34**	**578,000**	**8M**	**34**	**571,500**	**7M**
35	**586,000**	**8M**	**35**	**586,000**	**8M**	**35**	**578,500**	**7M**
36	**594,000**	**8M**	**36**	**594,000**	**8M**	**36**	**585,500**	**7M**
37	**602,000**	**8M**	**37**	**602,000**	**8M**	**37**	**592,500**	**7M**
38	**610,000**	**8M**	**38**	**610,000**	**8M**	**38**	**599,500**	**7M**
39	**618,000**	**8M**	**39**	**618,000**	**8M**	**39**	**606,500**	**7M**
40	**626,000**	**8M**	**40**	**626,000**	**8M**	**40**	**613,500**	**7M**
41	**634,000**	**8M**	**41**	**634,000**	**8M**	**41**	**620,500**	**7M**
42	**642,000**	**8M**	**42**	**642,000**	**8M**	**42**	**627,500**	**7M**
43	**650,000**	**8M**	**43**	**650,000**	**8M**	**43**	**634,500**	**7M**
44	**658,000**	**8M**	**44**	**658,000**	**8M**	**44**	**641,500**	**7M**
45	**666,000**	**8M**	**45**	**666,000**	**8M**	**45**	**648,500**	**7M**
46	**674,000**	**8M**	**46**	**674,000**	**8M**	**46**	**655,500**	**7M**
47	**682,000**	**8M**	**47**	**682,000**	**8M**	**47**	**662,500**	**7M**
48	**690,000**	**8M**	**48**	**690,000**	**8M**	**48**	**669,500**	**7M**
49	**698,000**	**8M**	**49**	**698,000**	**8M**	**49**	**676,500**	**7M**
50	**706,000**	**8M**	**50**	**706,000**	**8M**	**50**	**683,500**	**7M**
51	**714,000**	**8M**	**51**	**714,000**	**8M**	**51**	**690,500**	**7M**
52	**722,000**	**8M**	**52**	**722,000**	**8M**	**52**	**697,500**	**7M**
53	**730,000**	**8M**	**53**	**730,000**	**8M**	**53**	**704,500**	**7M**
54	**738,000**	**8M**	**54**	**738,000**	**8M**	**54**	**711,500**	**7M**
55	**746,000**	**8M**	**55**	**746,000**	**8M**	**55**	**718,500**	**7M**
56	**754,000**	**8M**	**56**	**754,000**	**8M**	**56**	**725,500**	**7M**
57	**762,000**	**8M**	**57**	**762,000**	**8M**	**57**	**732,500**	**7M**
58	**770,000**	**8M**	**58**	**770,000**	**8M**	**58**	**739,500**	**7M**
59	**778,000**	**8M**	**59**	**778,000**	**8M**	**59**	**746,500**	**7M**
60	**786,000**	**8M**	**60**	**786,000**	**8M**	**60**	**753,500**	**7M**
61	**794,000**	**8M**	**61**	**794,000**	**8M**	**61**	**760,500**	**7M**
62	**802,000**	**8M**	**62**	**802,000**	**8M**	**62**	**767,500**	**7M**
63	**810,000**	**8M**	**63**	**810,000**	**8M**	**63**	**774,500**	**7M**
64	**818,000**	**8M**	**64**	**818,000**	**8M**	**64**	**781,500**	**7M**
65	**826,000**	**8M**	**65**	**826,000**	**8M**	**65**	**788,500**	**7M**
66	**834,000**	**8M**	**66**	**834,000**	**8M**	**66**	**795,500**	**7M**
67	**842,000**	**8M**	**67**	**842,000**	**8M**	**67**	**802,500**	**7M**
68	**850,000**	**8M**	**68**	**850,000**	**8M**	**68**	**809,500**	**7M**
69	**858,000**	**8M**	**69**	**858,000**	**8M**	**69**	**816,500**	**7M**

10.6.2. Automatic Scanning the Terrestrial

This is to scan all the channels of the terrestrial. Select Tuner ID, Area, Network Search option and Search Method option by pressing LEFT/RIGHT button and press OK on SEARCH to start scanning. If you use active antenna (with built-in amplifier) set Active Antenna parameter (On).



10.6.3. Manual Scanning the Terrestrial

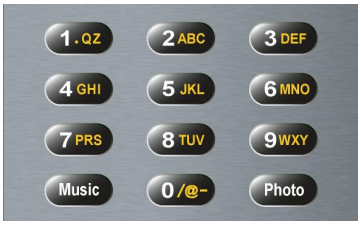
This is to scan channels on specific channel. Set Tuner ID, Channel Number, Frequency and Bandwidth. You can press OK to check the values on Frequency and Symbol Rate on menu or press NUMERIC buttons to input values directly. Press OK on “Search” to start scanning. If you use active antenna (with built-in amplifier) set Active Antenna parameter (On).

After channel searching, channels are listed automatically. Press OK or press EXIT to leave the menu.

11. HOT BUTTONS

This section explains various hot button's function while watching TV or listening to Radio. These buttons enable to reach the desired function or menu directly by pressing them.

11.1 TV or Radio Channel List

While watching TV or listening to Radio, you can get the 'TV or Radio a Channel List by pressing OK button on the remote controller. Use the navigation-buttons to move the highlights up/down and left /right. When you reach a channel that you want to check, press OK button for a view. To move to a channel that you have chosen, press OK button again.

11.1.1 Sort channel list

Sort the channels by A to Z, Z to A, FTA to CAS, Provider and Satellite.

With sort of A to Z, Z to A, Provider and Satellite, the numeric buttons of RCU works alphabetically,

With sort of FTA to CAS or default, the buttons works numerically, the cursor moves directly to the specific channel name or channel number.

11.1.2 Select Channel by tuner ID

It displays channel list by Tuner ID as 1 or 2 or both (default).

11.1.3. Jump Move

The cursor moves by a sorting condition like numerically or alphabetically.

11.2. Edit in the Channel List

Press button on the RCU in channel list menu (OK button for channel list) for Channel Edit mode.

It supports Delete, Hide, Lock, Rename, Volume level, Move channel or channels

11.3. Favorite Channel List

Favorite Channel list is available anytime by pressing the FAV button on RCU. The default groups are Sports, Drama, News, Movie and Music.

11.3.1. New Favorite Group

To create a new favorite group, move the cursor to right and choose "**Make Fav List**" and press OK

button to bring virtual key board and create new favorite group with the virtual keyboard.
To save the new group, Press ENTER on the virtual keyboard.

11.3.2. Delete

To remove the marked ( ) channel in the favorite group, move the cursor to right, choose "Delete" and press OK button.

11.3.3. Rename

To change a channel or favorite group name, move the cursor to right, choose Rename and press OK button to bring virtual keyboard and change the selected channel & FAV group, and then press ENTER to save the changed name and press Exit button on RCU to close the virtual keyboard.

11.3.4. Add Channels

To add new channels to Favorite list and group, move the cursor to right, choose Add Channels and press OK button, and all channels list appears.
The high-lighted channel will be added by pressing OK button and then you can see added channels in the selected favorite
group on the right section.
Favorite List also supports the edit functions: Move channels, Lock and Hide channels.

11.4. Electronic Program Guide

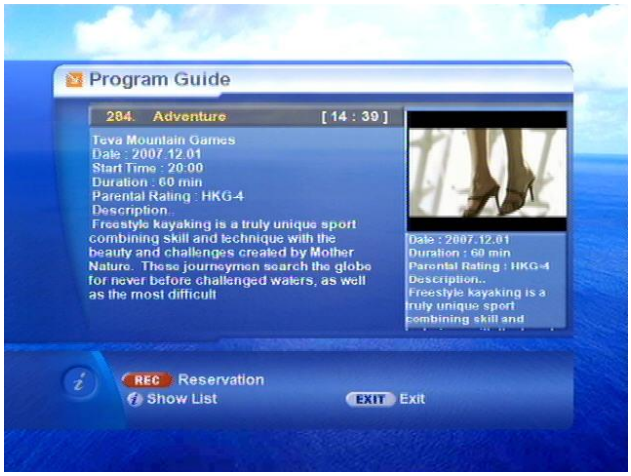
Press the EPG button on the remote control, and TV electronic program guide (EPG) appears.

Use the navigation-buttons up/down and left/right to move the highlights.

If you press once, **List type** of EPG appears. If you press once more, **Grid type** of EPG appears.

Use Blue function button to move to the next day schedule and Red function button to move to the previous day schedule.

To get more detailed EPG on specific channel, move high-lights to the channel and the content then press button.


Program Guide
284. Adventure [14 : 39]
Teva Mountain Games
Date : 2007.12.01
Start Time : 20:00
Duration : 60 min
Parental Rating : HKG-4
Description..
Freestyle kayaking is a truly unique sport combining skill and technique with the beauty and challenges created by Mother Nature. These journeymen search the globe for never before challenged wakers, as well as the most difficult
Date : 2007.12.01
Duration : 60 min
Parental Rating : HKG-4
Description..
Freestyle kayaking is a truly unique sport combining skill and
REC Reservation
Show List
EXIT Exit

11.4.3. Search

To search channel's EPG under specific category/genre that you like, press button

EPG data show dependent on EPG availability of broadcasting media providers.

Category: Select genre of programs.

(Movie/News/ Sports etc)

Sub Category: Select sub-category of programs

(Adult movie / Romance / Comedy etc)

Program name: Put a specific program name in it by using virtual key board.

Classification: Set an age restriction limit.

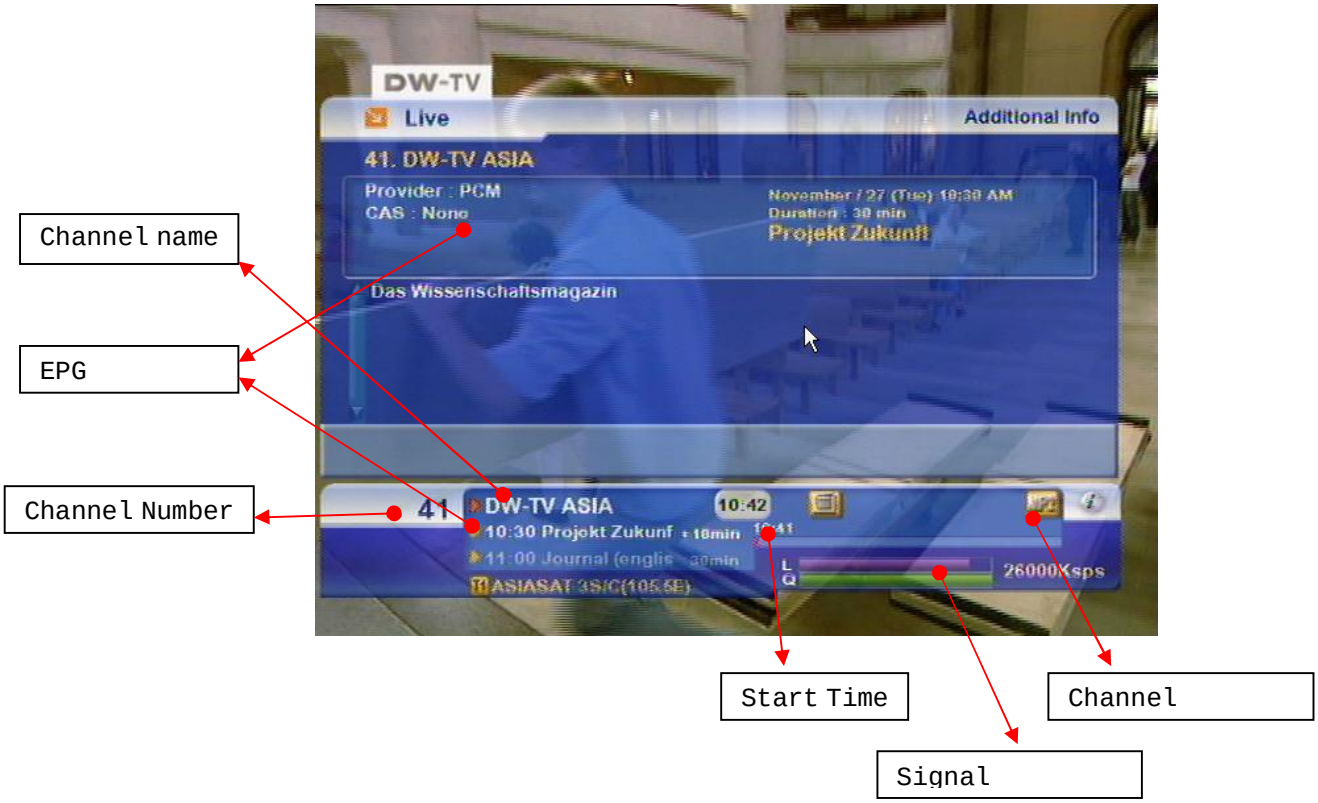
11.4.4. Zoom

Press the button of the RCU, select the time-grid of EPG display by 30 Min, 1 hour, 2 hours.

11.5. Channel Information

Info banner appears by pressing button. If you press twice, channel details are also available. The info bar shows all necessary information about the selected channel.

Any highlighted icon in yellow on the info banner indicates the availability of the services.



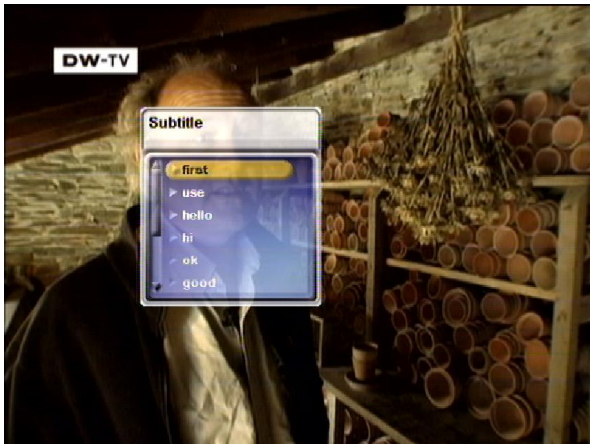
11.6 RCL

To move back to the previous channel, press

button.

11.7 Subtitle

If a channel is available for the subtitle service, press the subtitle icon button . If it services more than two languages, it is selectable in the language settings menu.



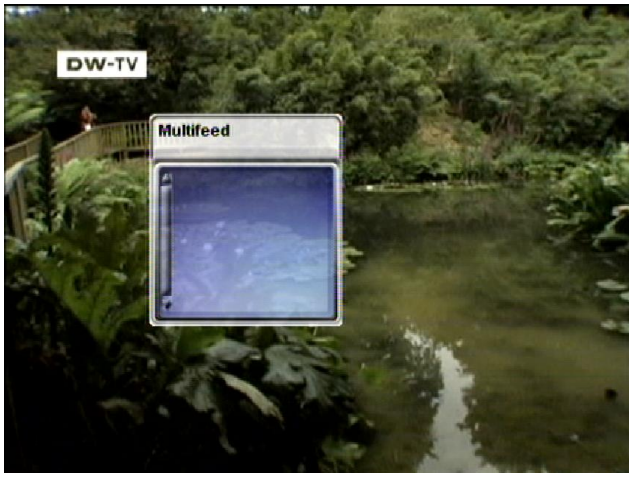
11.8 Alternate audio

Press on the remote controller to select an audio language and sound mode:
(Mix / Mono Left / Mono Right),

Audio languages are selectable by pressing Left/Right direction button. Press or EXIT key to exit.

11.9 Multifeed function for Premiere channel

When you move to ‘main feed’ and press button of remote controller then Multifeed List (sub-channels) will appear. Use Up/Down buttons to select desired sub-channel and press OK.



11.10. OSD teletext.

OSD teletext is available if served. If the teletext icon on Info Banner is appeared the icon, press this button to see the teletext information.

Note: VBI teletext function is not supported,

P100 CNNTEXT P100 Sat 01 Jun 12:33:40
CNN text
Powered by CNN.com
NEWS-IN-BRIEF 120 TRAVEL INDEX 400
ENTERTAINMENT 130 WORLD SPORT 500
CNNI TV GUIDE 200 FINANCIAL NEWS 700
INTERNATIONAL BOOKMAKERS INDEX.... 223
International Spot Rates... 731/734
INTERNATIONAL REAL ESTATE..... 820
European Bookmakers Index... 223
826 100 107

11.11. PIP(Picture in Picture) and PAP(Picture and Picture).

Subchannel list or Subscreen

PAP

Close

: you can see two channels on the screen, one main channel, the other sub-channel (it can be two channels from different satellites or TP if you use two tuners).
If press this button once more, PAP on the screen

: you can change the location of the sub-channel.

: you can swap sub-channel and main channel, and vice versa

Sub ch : you can see sub-channel list, and change the sub-channels. Or you can see recorded files with sub-picture

Caution: two MPEG 4 channels cannot be shown on the screen at the same time, that is, not supporting PIP function for two MPEG 4 channels.

11.12. Music list. Music

Audio files like MP3 can be downloaded and played at this place of the HDD.

11.13. Photo list Photo

Pictures can be downloaded at this place of the HDD and enjoy the photo album, and you can change the picture names.

11.14. File list.

All the recorded files (by Scheduled Record such as EPG record or Timer Event Record, instant record) are recorded at this file.

Press button to open the recorded files, in which you can play and edit the recorded files.

You can watch the file in small screen with OK button on the file name.

If you want full screen, press OK button once more or EXIT button.

button makes it back to the live program from file playing.

button shows play options such as From beginning, Resume, and book mark positions.

Caution: if you erase one or more files, it will be applied (the files will be erased) after rebooting (cold off and on).

11.15. Internet (reserved) www

This button is reserved for IPTV.

12. Select your TV system (1080i, 720p, PAL)

Caution: When the TV SYSTEM (your TV type) does not match to the STB setting, TV screen and/or audio may not show properly.

In that case, you need to switch off the STB, and **press Power button -> then press and hold Menu button -> use Up/Down direction button to select your TV system -> press OK** on the front panel.

If you can open and see the Main menu, you can adjust on the AV Settings menu.

13. IP setup

13.1. Manual setting

Use the Navigation Buttons and directly enter numeric values of corresponding parameter (IP Address, Subnet Mask, Gateway) and then press SUBMIT.

You must also manually set parameters when connecting your receiver with another STB or PC without using a switch or a router. Use crossed Ethernet cable.

Example for direct connection:

Receiver (1) :
IP Adress 192.168.1.20
Subnet Mask 255.255.255.0
Gateway 192.168.1.135

Receiver (2) or PC :
IP Adress 192.168.1.21
Subnet Mask 255.255.255.0
Gateway 192.168.1.135

13.2. AUTO (DHCP)

For the VDSL or ICS client users.
It detects values automatically. No need to enter any values here. After selecting Auto(DHCP), press submit button to have all settings show up automatically. If LAN cable is not properly connected, all settings might appear as “0.0.0.0.” In this case, check the cable connection and retry it.

13.3. AUTO (PPPoE)

For the ADSL users
ID and Password (which acquired from internet service provider) are required here; enter the values by using virtual Keyboard. Press OK button to bring the Virtual Key board.

13.4. AUTO (PPP)

For the Dial up MODEM users
ID and Password (which acquired from internet service provider) are required here; enter the values by using virtual Keyboard. Press OK button to bring the Virtual Key board.

14. Restore Factory Setting

It requires PIN code to access the Factory reset (Default PIN code: 0000).
It removes Channel List, FAV List and it restores original factory settings.

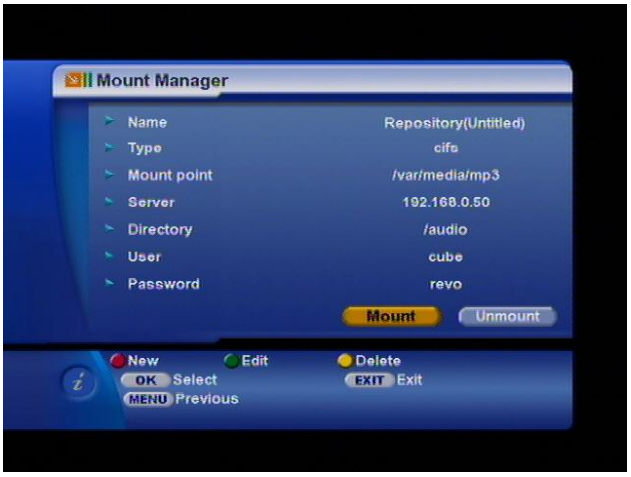
To restore factory settings, press ok. All settings will be deleted.

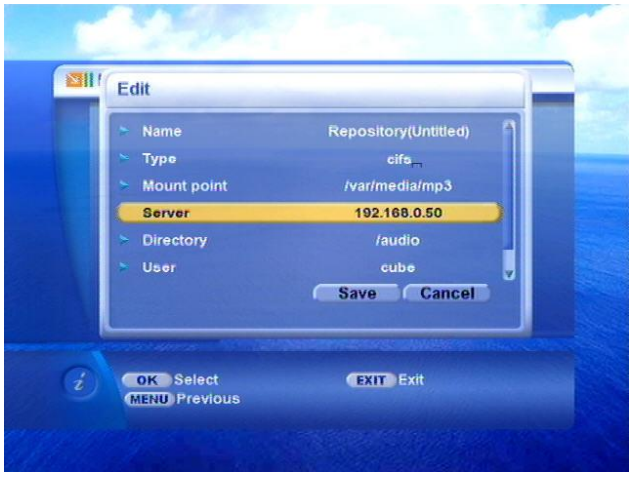
15. Mount Manager

You can use Mount manager to share directory (e.g. MP3 music files) on your PC via LAN.

Type	(cifs : accessing to Windows PC, nfs : accessing to Linux PC)
Mount point	Point for the mounting of the mp3 files in STB
Server	IP address of the server PC that your computer has
Directory	Folder name where mp3 files exist in your PC. It has to be shared.
User/Password	If your computer has ID or PASSWORD, insert them. If not exist, leave it as a blank or default.
Active	Select 'yes' and then click on 'Mount' button at the bottom of the screen.

Caution:
In case that your computer is switched off or disconnected, click on 'Unmount' button. Otherwise it can cause some problem such as longer booting time.





16. PVR OPERATION

Receiver enables simultaneous recording of two channels and 1 recorded file playback. If the STB is equipped just with one tuner then both recorded programs must be from one TP, If the STB is equipped with two tuners the recorded programs can be from different TP or satellites. Simultaneously it is possible to watch live program (must be from the same satellite as one of two recorded programs) or playback an record from HDD.

16.1. Instant Recording

Press button to record the channel that you are currently watching.
In the channel list, a channel in red indicates the currently recording channel.

Press button to stop recording. Select a channel name that you want to stop recording, and press OK button to confirm.

If you need to **adjust the duration** in the record channel, press button.
The default duration is two hours; the duration can be set up to maximum 23h 59min.

When Time Shift is set ON in the HDD setup menu, the instant recording point depends on the Time Shift setting in HDD setting menu.

Condition 1
Time Shift – ON & Include Time Shift On Record – YES in HDD Setting menu
With the above setting, when you press record button, it records from the beginning of timeshift buffer on the Time Shift bar on the bottom of the screen.

Condition 2

Time Shift – ON & Include Time Shift On Record – NO in HDD Setting menu

With the above setting, when you press record button, it records from the current live point and timeshift buffer disappears automatically.

Condition 3

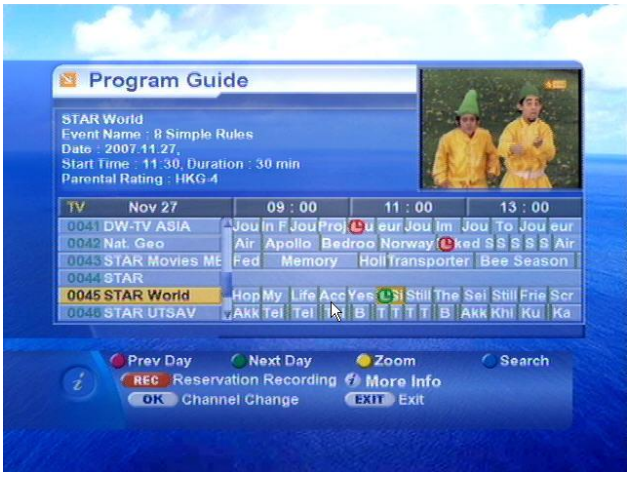
Time Shift – OFF in HDD setting menu

When you press record button, it records from the current live point

16.2. Scheduled Record by EPG or timer event

To show currently recording files and reserved recording list on the Menu.

Scheduled Recording
Mode Channel Period Start time Duration
Zap DW-TV ASIA Once Nov. 30 05:30 00:30:00
Rec DW-TV ASIA Once Nov. 29 21:00 01:00:00
Rec DW-TV ASIA Once Nov. 29 21:30 01:00:00
Zap DW-TV ASIA Once Nov. 29 22:00 00:30:00
Rec DW-TV ASIA Once Nov. 29 18:44 04:00:00
Rec FASHION TV Once Nov. 29 18:46 02:00:00
Add
Delete
OK Edit
MENU Previous
EXIT Exit



A recording notice pop-up will appear for 10 minutes before the reservation recording starts.

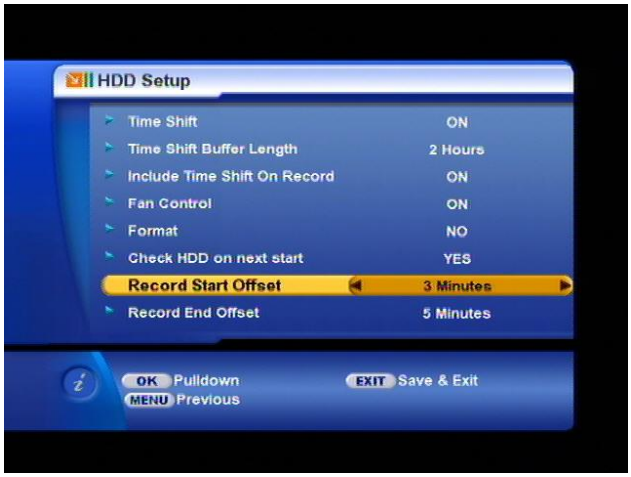
If the STB is in standby mode, the scheduled records automatically begin 10 minutes prior to the scheduled time.

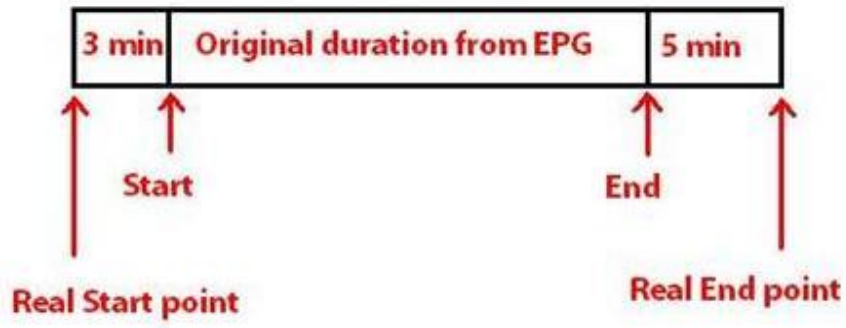
If you press the power button on RCU while recording, a message box appears for your confirmation if you want to stop recording. Press OK button to save the recorded file on HDD.

Reservation recording on the EPG menu:

Select desired program on EPG content and press . Symbol appears that means that selected program is reserved for recording. Press again – symbol appears that means that selected program is reserved for zapping. Press once more to cancel reservation.

It is possible to set time offset before and after real time of planned program (according the EPG) in HDD settings menu:





16.3. Timeshifting on live channels.

Timeshifting on a live channel is available when set Time Shift – ON in HDD setting menu . When a channel is zapped to others, the recorded file will disappear automatically, then it starts to record the current live channel.

On live channel, all kinds of the PVR functions are available such as Pause, Jump back, Jump forward, Rewind, Fast forward, Slow motion, Frame by frame play.

16.4 Book mark

Press the button, to make a bookmark on the time bar where you want. If you want to move to the next bookmark press PLAY button to jump to the next bookmark. Press button on specific bookmark to remove it from time grid.

16.5. Play

Press the button under the book mark ( ) on the display time bar to jump to the next book mark, and it starts playback from the marked point.

16.6. Repeat

Press the button to repeat the portion of the recorded file between any two neighboring bookmarks. Press the button and hold over 2 seconds to repeat the whole file.

If there is no bookmark , you have to repeat the whole file. To exit from the repeat function, press button once more.

16.7. Stop

To stop playing the file and back to a live channel.

16.8. Pause

To pause file playing, press this button once. To resume playback, press this button once more. To go back to normal play mode, press Play ( ) button.

16.9. Fast forward/ Fast reverse or random position jump & playback

To move the time bar forward/ backward x2, x3, x4, x5 speed rate by pressing a button shortly, and if you press PLAY ( )button, it is back to normal speed mode.

If you keep pressing the button, the time bar moves as fast as you desire.

16.10. Slow motion and Frame by Frame

If you keep pressing the button for 1~2 seconds and release, it plays slow motion. If press the button more and more, it changes slow rate like x1/2, x1/3, x1/4, x1/5.

If you press the button shortly, it plays frame by frame. As you press the button more and more, it moves picture by picture. Press PLAY button to move back to normal play mode.

18. Information

18.1. System Information

It displays information about software and hardware configuration of the receiver:

Version/model of receiver

Micom Version

Boot Version

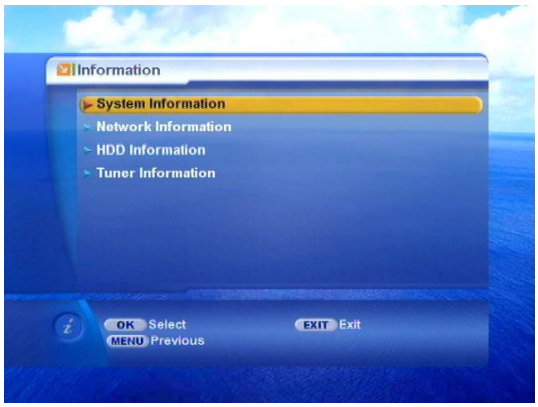
Image (firmware) Version

DB Version (database)

PCB Version (motherboard)

Product ID

First time activation date



18.2.Network Information.

It displays network info such as IP address, Subnet mask, Gateway etc.

18.3. HDD information

It displays product name of HDD, HDD capacity, Free space

18.4. Tuner information

It displays which kinds of tuner inserted like as DVB-T, DVB-S, DVB-S2, DVB-C, PLL, model name of the demodulator, part name of the tuner.

19. SOFT WARE UPGRADE

< USB Driver installation >

For the first time, follow the instructions from 1 to 13. This procedure is required for initial use for once.

1. Download and install the Flash tools(version 1.0.2) program on your PC
2. AC power Off in the rear panel or press power button and OK button simultaneously on the front panel.

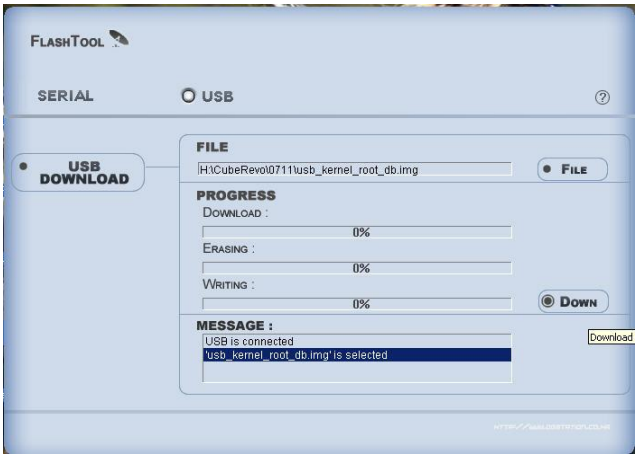
(This is to make Cold Off mode)
3. Connect between your PC and STB with USB Cable
4. AC Power On.
5. Press and keep holding the Power button and press + right direction button on the front panel, and you see “USB UPGRADE” in the front panel.
6. PC detects new hardware device (important) to INSTALL the USB driver
7. Driver Installation Wizard Appears
8. Select ‘install from a list or specific location (advanced)’ and click ‘Next’.
9. Select ‘Include this location in the search’ and click ‘Browse’
10. Designate the folder at C:/Program files/Flash_tools) and click ‘Next’
11. Wizard will search the driver file.
12. Select ‘USB FOR VESTA – c;/windows/inf/vestausb.inf’ and click ‘Next’
12.1. If it asks system file in some case, Browse at c:/program files/Flash_tools/vestausb and click ‘OK’
13. Click ‘Finish’ when it is done.
Important: The order of this procedure is very important; please do follow the instruction step by step.
When Driver is installed successfully, it is ready to download the latest image to the STB (USB download instructions)

< Downloading software using USB (client)>

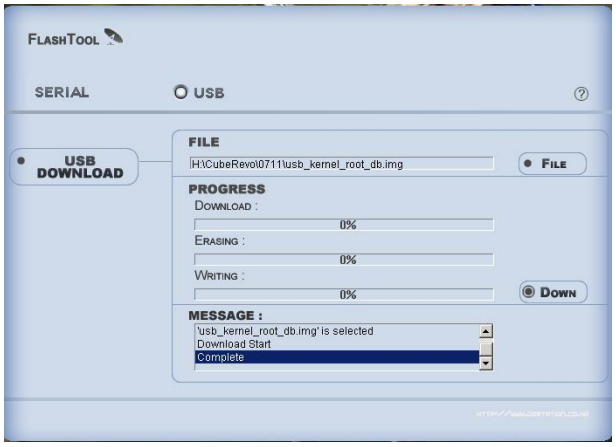
1. Your STB and PC have to be connected by USB cable.
2. The STB has to be in ‘USB upgrade mode.
   * For the ‘USB upgrade’ mode, refer to above Driver installation procedure from 1 to 5.
   * Tips to make USB upgrade mode without AC Power ON/OFF or power button + + right direction button.
     - If you are watching TV now, press Power button + OK button. This status is same as AC OFF/ON which is so called ‘Cold off’.

   And then, Press and keep hold the Power button + right direction button on the front panel until you see “USB UPGRADE” on the front
3. Run the Flash Tools
4. Select ‘USB’ and check the “USB connected” in the Message box.
5. Designate the image that you want to download to the STB by pressing FILE
6. Click ‘Down’ and Wait for "DONE" on the front display.
7. If you want to download software composed of several parts designate the next part into File window and press Down button. After finishing press Power button to reboot - your STB will be restarted

Select “ USB”



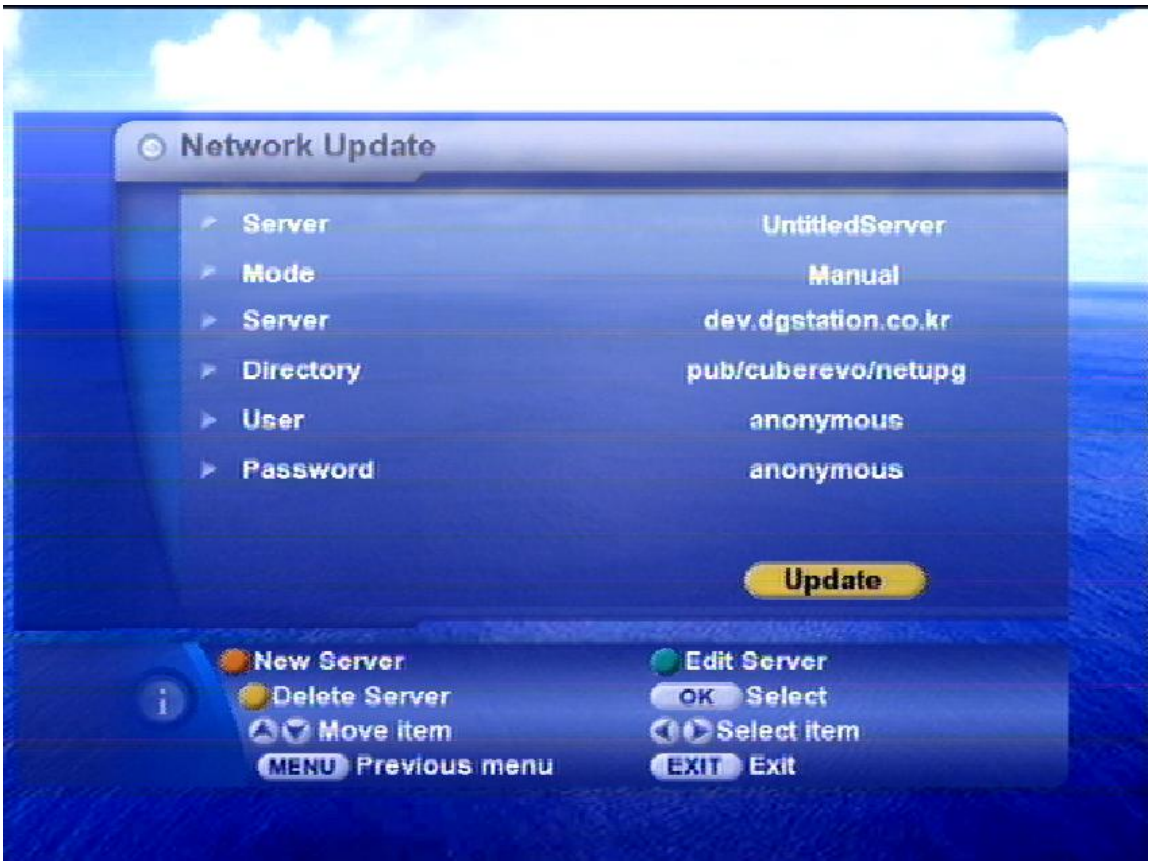
Select “ proper file”



complete

<Network Update>

Latest firmware (images) and welcome pictures can be updated via Ethernet port using network update system.



A new functions for your receiver are available if you have installed uboot version 1.3.1 (190508) or newer one:

1. Software upgrade from USB memory stick (host):

- backup important data from memory stick before try to update. Remove all data from it.
- copy usb update image to memory stick and rename it: usb_update.img
- run "remove h/w(memory stick)" function on PC. You can see icon on right bottom (left of clock) screen.
- turn off the stb(⏻/I + OK) and insert the memory stick.
- press and hold Standby button (⏻/I) until front display shows “BOOTING” and press UP key (on the front side of the box, not on RC), then front display shows "USB UPGRADE" message.. uboot will update s/w with usb_update.img from memory stick
- Wait until DONE message displays. Restart your receiver.

2. Shutdown by force :

Press power button (⏻/I) + OK(OK).

3. TV resolution adjustment :

Press and hold power(⏻/I) button on the front panel, and press menu(MENU) button at the same time on cold off mode

4. Serial upgrade mode :

Press and hold power(⏻/I) button on the front panel, and press right direction arrow(▶) button at the same time on cold off mode

5. HDD format by force :

Press and hold power(⏻/I) button on the front panel, and press downward direction arrow(▼) button at the same time on cold off mode.

Universal Remote Controller for operation with other AB IPBox models

It is possible to adjust AB IPBox AB IPBox 9000HD remote controller for operation with other AB IPBox models.

Press and hold OK button together with corresponding number button (see lower list) for approximately 10 seconds – after finishing “STB” button will blink. Release the buttons.

Modes of operation of **AB IPBox 9000HD remote controller:**

OK+1 : AB IPBox 4xxS a AB IPBox 250S

OK+2 : AB IPBox 9000HD

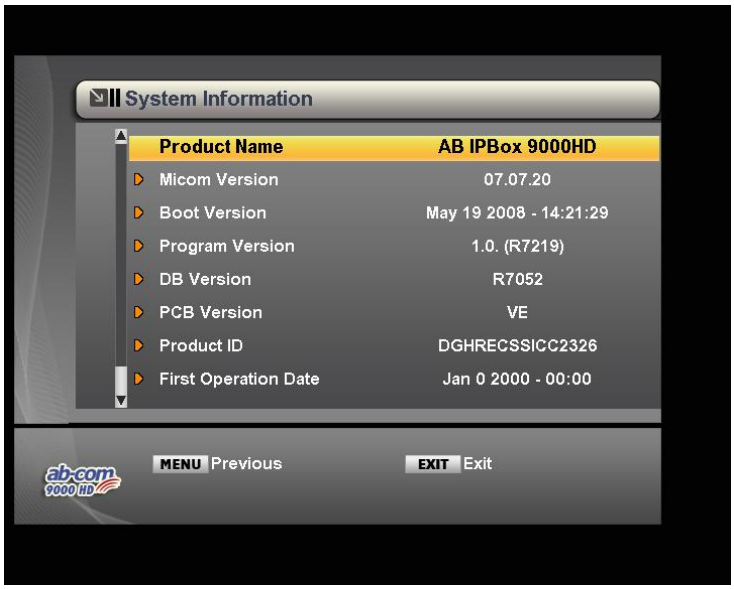
OK+3 : AB IPBox 350Prime

OK+4 : AB IPBox 200S

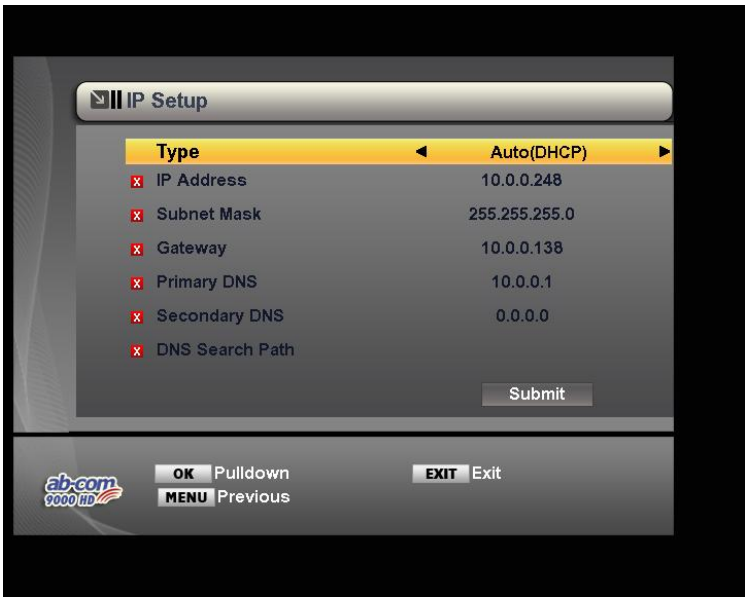
OK+5 : AB IPBox 900HD

Installation of addons (AB image)

If you use AB image you can install several types of addons (additional modules).



Webinterface of your receiver is designated to install addons.
Find out IP address of your receiver in menu before starting an installation of addons.



Use a ftp software to connect to your receiver.
Use name: root password: ipbox

Copy installation file of addon (file with .ipk extension) into /tmp directory of your receiver.
Run a web browser in your computer and insert IP address of your receiver into the address line.
Use name: root password: ipbox
Initial web interface page of your receiver should be displayed.

AB IPBox 9000HD
home
addons
free space
mounts
process
password
skins
free
free
free
AB IPBox 9000HD
Webinterface version AB_1.0
Specification:
- Processor: STI7101-266MHz, 192MB DDRAM, 32MB Flash
- 2x Common Interface slot, 2x Smart Card reader
- 2x Exchangeable Plug and Play tuners support (DVB-S2, DVB-S, DVB-T, DVB-C)
- HDTV and SDTV decoding (MPEG2, MPEG4 (H.264) formats)
- Alphanumeric VFD display with channel name presentation
- Ethernet 10/100, USB 2.0 Host controller, USB 1.1 Client
- HDMI 1.2a with HDCP output (1080i, 720p, 576i formats)
- Internal 3,5 SATA (SATA I) HDD support
- Simultaneous recording of two channels of one or two TP while watch 3rd channel
- Time Shift function - possibility of getting back in time on real time canal
- MP3 , JPEG and DivX playback from internal HDD or USB disc, Internet radio playback
- Built-in AC3 decoder with 2.0CH downmix, multi-format audio decoder
- Web interface for complete remote management of the receiver
- Possibility of watching TV programs through LAN or Internet
- PIP/PAP function recording+live or live+live picture from one or two tuners
© 2008 AB Com - All right reserved | AB IPBox 9000HD | Created by: Majesticart.cz
CONNECTING PEOPLE TO DIGITAL HOME ENTERTAINMENT
DIGITAL LINUX SATELLITE HD RECEIVER

Select „addons“ flag and confirm installation by pressing „INSTALL“ button.

AB IPBox 9000HD
home
addons
free space
mounts
process
password
skins
free
free
free
addons
manual
Install
Addons instalation manual
Copy "addon_xxx.ipk" file to /tmp directory . Connect to STB by webinterface and in left menu set up "MANUAL" and press "INSTALL" . Addon installed automaticaly, wait for reboot .
Addons instalation
You can install additional addons.
© 2008 AB Com - All right reserved | AB IPBox 9000HD | Created by: Majesticart.cz
CONNECTING PEOPLE TO DIGITAL HOME ENTERTAINMENT
DIGITAL LINUX SATELLITE HD RECEIVER

Addon will be installed automatically and receiver will restart.

20. GLOSSARY OF TERMS

CA Conditional Access. A system to control subscriber access to services/ programs.	RF Radio frequency (known as HF in some countries).
Polarization Enables simultaneous transmission of several channels on the same frequency.	SCART A 21-pin connector used for connection of the STB, VCR and TV. Also known as Euro connector
DVB The Digital Video Broadcast group was created to establish a technical framework for the introduction of digital video broadcasting systems.	S/PDIF Sony/Philips Digital Interface Format Digital audio output.
EPG Electronic Program Guide. The programming information provided By the service provider that enables a viewer to find the much Information of programs.	Symbol Rate Speed of the digital transmission
LNB (Low-Noise Block Converter) is an essential part of a satellite receiver which receives the signal and amplifies it for use. It is always located with the satellite antenna	TS Transport stream.

21. TROUBLE SHOOTING

Problem	Possible Causes	What To Do
No display appeared on front	Power cord is not plugged in.	Check that power cord
No Sound/ Picture	Wrong Audio/ Video output connection between the Receiver and TV set. Mute Audio	Check Audio/ Video output connection between the Receiver and TV set. Press Mute button to recover.
	TV Power off	Turn TV on
	No Signal	Check the cable connections and other equipment connected between the cable line and the receiver.
	Wrong direction of the dish	Adjust correctly the direction of the dish to the cable
	Wrong Video resolution for TV	Resetting video resolution
Remote controller does not respond	Batteries are not inserted correctly or low.	Check the batteries or replace with new batteries
CA module is not working	CA module is not inserted correctly.	Check if CA module is inserted correctly.
Recording is not working/ Recording is stopped	No HDD space is available.	Check HDD status.
Forgot PIN Code		Contact your local service provider/ dealer.
System Halt	System Halt or Error	Press & Hold OK and Power key on the front panel to return to stand by mode.
No EPG data	Wrong Local time	Press time update in local time setting menu at proper channel
Displays “ERR 80” or “ERR 81” on front panel	Communication fail with main board with CPU	Contact to A/S center
Displays “ERR 82” or “ERR 83” on front panel	Wrong contact to tuner module with mini-PCI socket	AC power off and Adjust tuner module
Displays “PANIC” on front panel	Wrong memory use by program	Press “ power button” for restart

Err 79	Mismatched DB version	Download proper db.img or all-noboot.img
Err 1	CRC error	check the image
Err 2	CRC error	check the image
Err 3	Vendor ID mismatch	check the image
Err 4	Product ID mismatch	check the image
Err 5	Mismatched H/W model name	check the image
Err 6	Mismatched H/W model version	check the image
Err 8	Erasing fail	Contact to A/S center
Err 9	Flashing fail	Contact to A/S center
Err 10	Incorrect or missing install file	check the image

22. PRODUCT SPECIFITION

Part	Type	Specifications	
CPU	Type	266MHz ST40-202 32bit RISC CPU	
	Data/Instruction Cache	32KB/16KB	
Satellite QPSK Tuner(DVB-S)	Input Connector	IEC 169-24 Female(F-type)	
	Input Signal Level	-65 to -25dBm	
	Frequency Range	950MHz to 2150MHz	
	LNB Control	Vertical	13V(400mA Max)
		Horizontal	18V(400mA Max)
	Waveform	QPSK(C/KU band compatible)	
	22KHz Tone	Frequency	22±4KHz
		Amplitude	0.6±0.2V
	Symbol Rate	QPSK(up to 45MS/s)	
	DiSEqC Control	Version 1.0/1.1/1.2/USALS Compatible	
Satellite 8PSK Tuner(DVB-S2)	Input Connector	IEC 169-24 Female(F-type)	
	Input Signal Level	-65 to -25dBm	
	Frequency Range	950MHz to 2150MHz	
	LNB Control	Vertical	13V(400mA Max)
		Horizontal	18V(400mA Max)
	Waveform	QPSK, 8PSK(C/KU band compatible)	
	22KHz Tone	Frequency	22±4KHz
		Amplitude	0.6±0.2V
	Symbol Rate	QPSK(up to 45MS/s), DVB-S2 :QPSK(up to 36MS/S), 8PSK(up to 30MS/s)	
	DiSEqC Control	Version 1.0/1.1/1.2/USALS Compatible	
Terrestrial OFDM Tuner	Input Connector	IEC169-2 female	
	Loop through Connector	IEC169-2 male	
	Frequency Range	50MHz to 870MHz	
	Loop through Out Impedance	75 ohms nominal	
	Band Width	7/8 MHz	
	Carrier Mode	2k & 8k hierachical/non-hierachical mode	
	Constellation	Auto(QPSK, 16/64 QAM)	
	Mode Rate	Auto(1/2, 2/3, 3/4, 5/6 and 7/8)	
	Guard Interval	Auto(1/4, 1/8, 1/16 and 1/32)	
Cable QAM Tuner	Input Connector	IEC169-2 female	
	Loop through Connector	IEC169-2 male	
	Frequency Range	47MHz to 862MHz	
	Loop through Out Impedance	75 ohms nominal	
	IF Bandwidth	8MHz	

	QAM mode	16, 32, 64,128,256QAM
	Symbol rate	0.87Mbaud~7Mbaud Max.
MPEG Transport Stream & A/V Decoding	Input Stream	ISO/IEC 13818-2 Specification and VC1 Microsoft video format main/advanced profiles@HL(WMV-9)-optional, H.264 profiles@
	Profile & Level	MPEG-2 MP@ML, MP@HL, MPEG4 AP@HL/H.264 level 4.1, VC1(WMV9)-optional
	Input TS Data Rate	138Mbit/S max.
	Aspect Ratio	4:3, 16:9 with pan/scan vector
	Video Resolution	720 x 576(PAL), 720 x 480(NTSC), 1080i, 720P, 480i, 480P
	Audio Decoding	MPEG-1 Audio Layer 1,2, Musicam
	Audio Mode	Stereo, Dual Channel, Joint Stereo, Mono
	Sample Rate	32, 44.1, and 48KHz
Memory	Flash Memory	32MB
	DDR SDRAM	192MB (64MB+128MB)
Storage & Rear connector	HDD	Serial ATA 80/120/160/200GB and over (User Selectable)
	Digital interface for HDTV	HDMI with HDCP
	SCART I/F	VCR & TV(2 Ports)
	CVBS & Audio R/L Out	RCA(3 Ports)
	S-video	Din
	Component Out(YPbPr)	RCA(3 Ports)
	Digital Audio	S/PDIF via Optical
Data In/Out	USB Host Interface	USB A-Type Female (USB 2.0)
	USB Device Interface	USB B-Type Female (USB 1.0)
	RS232C	9 Pin D-Sub
Network	Ethernet	RJ-45(100BT)
Conditional Access	Common Interface	2 PCMCIA-Cards Slots
	Smartcard Interface	2 Slots
Front Display	VFD	Vacuum Fluorescent Display as Alpha numeric style
Power Supply	Input Voltage	AC110-245V, 50/60Hz
	Type	Linear PWM
	Power Consumption	50W
	Protection	- Separate Internal Fuse and Chassis
Physical Specification	Size (W x H x D)	375mm x 60mm x 280 mm
	Weight	3.5Kg
Environment	Operating Temperature	5 ~ 55°C
	Storage Temperature	-40°C ~ +65°C

NOTICE

Contents of this manual and features/ Specifications of the STB are subjected to change without notice.

- HDMI™, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks
- of HDMI Licensing LLC.
- HDCP : licensed with HDCP
- Dolby Digital™ : Dolby is a trademark of Dolby Laboratories, Manufactured under license from Dolby Laboratories
- MPEG-4 AVC/H.264 : licensed with MPEG LA
- MP3 Audio : MPEG Layer-3 audio coding technology licensed from Fraunhofer IIS and Thomson.
- DVB-T : licensed with MPEG LA and ETSI

23. TV BRAND CODE LIST.

Brand List for TV

[A]

A MARK	022
A.R. SYSTEM	008 086 209
ABEX	006
ACCENT	008 086
ACCUPHASE	008
ACTION	113 125
ACURA	024
ADMIRAL	030 044 070 075 109 123 197 210
ADYSON	006 053
AEA	008 086
AGASHI	053 070
AGB	184
AGEF	197
AIKO	008 018 019 024 053 070 086 107 194
AIM	008 018 086 131
AIWA	148 149 193
AKAI	005 008 018 024 029 053 070 086 096 099 107 109 125 146 177 182 184 185 186 187 188 194 210
AKIBA	008 074 086 189
AKITO	008 086
AKURA	008 024 054 070 074 086 131 200 207
ALARON	052 061 065
ALBA	007 008 024 054 086 110 123 146 174 200 210
ALCYON	196
ALKOS	194
ALLORGAN	053 111
ALLSTAR	008 086
AMBASSADOR	041
AMPLIVISION	053 174
AMSTRAD	008 024 041 049 070 086 131 146 155 184 208
ANAM	008 023 024 062 086
ANAM NATIONAL	008 014 086
ANGLO	024 070
ANITECH	008 024 070 074 086 129 196
ANSONIC	008 024 086 112 129 174 180 198 200 210 213
AOC	005 022 029 066
APOLLO	181
ARCAM	052 053
ARCHER	022
ARDEN	008 086 187
ARISTONA	008 086
ARTHUR-MARTIN	210
ASA	160 161 170 173 178 195 197 198 199
ASBERG	008 086 129 196
ASORA	024
ASTRA	008 086
ASUKA	053 054 070 074
ATLANTIC	008 086 108
ATORI	024
AUCHAN	210
AUDINAC	089
AUDIOSONIC	008 024 053 070 086 174 176 180 187 188
AUDIOTON	053 070 174 176 180
AUDIOVOX	019 022 062 082
AUMARK	016
AUSIND	179 196
AUTOVOX	053 058 075 107 178 196 197 205
AWA	008 024 053 070 086 131 185
AXXENT	024
AXXON	187

[B]

BAIRD	018 053 096
BANG & OLUFSEN	197
BARCO	084 210
BASIC LINE	008 024 053 054 074 086 189 200 210
BASTIDE	053
BAUR	008 085 086 087 092 098 107 109 205
BAYSONIC	062
BAZIN	053
BEAUMARK	029 060
BEC	109 113 125
BECRESE	042 098 099 109 113
BEKO	008 086 174 176 180 185 187 188 194
BELCOR	029
BELL & HOWELL	026 039 096
BEON	008 086 123
BERTHEN	200
BEST	174
BESTAR	008 086 174
BINATONE	053

Brand List for TV

BLACK DIAMOND	008 146
BLACK PANTHER	129
BLACK STRIP	194
BLACKSTRIPE	042 096 098
BLACKTRON	074
BLACKWAY	074
BLAUPUNKT	050 051 069 189
BLUE SKY	008 054 074 086 146 187 188 189 200
BLUE STAR	074
BOOTS	024 053
BOSCH-BAUER	108
BPL	008 074 086 209
BRADFORD	062
BRINKMANN	008 086 123 176 200
BRIONVEGA	008 086 197 208
BRITANNIA	052 053
BROCKWOOD	029
BROKSONIC	022 057 083
BROTHER	070
BRUNS	128 180 197
BSR	103 107 111 210
BTC	054
BUSH	007 008 024 053 054 070 074 086 096 103 107 109 110 146 187 200 201 205 210

[C]

CANDLE	005 015 067
CAPEHART	125
CAPSONIC	070
CARAD	008 086 200
CARENA	008 086 189
CARNIVALE	005
CARREFOUR	007 008 086 195
CARVER	013 048
CASCADE	008 024 086
CASIO	008 086 205 210
CATHAY	008 086
CCE	008 053 077 086
CCI	118
CENTRUM	146
CENTURION	008 086
CENTURY	197
CGE	091 123 174 196 210
CIE	133
CIMLINE	024 110
CINERAL	019 082
CITIZEN	005 009 015 016 019 042 067 073
CITY	024
CLAIRTONE	066
CLARIVOX	008 086 123 124 129 195
CLATRONIC	008 024 053 070 086 108 129 174 187 196
CLAYTON	146
CME	007 008 018 024 025 041 044 053 055 056 058 075 078 085
CMS HIGHTEC	053
CONCERTO	015
CONCORDE	024
CONDOR	008 024 070 074 086 108 112 123 129 174 210
CONIC	113
CONRAD	008 086
CONTEC	007 008 024 052 062 066 070 086
CONTINENTAL EDISON	151
COSMEL	008 024 086
CRAIG	062
CRIPTOVISION	095
CROSLEY	013 113 162 196 197 210
CROWN	008 009 024 062 086 096 123 129 174 176 185 187 188 196 204 207 209
CS ELECTRONICS	052
CTC	108
CURTIS MATHES	005 009 010 011 013 015 016 026 030 036 039 042 046 082 096
CXC	062
CYBERTRON	054

[D]

DAEWOO	008 009 019 024 029 053 082 086 133
DAINICHI	054
DANSAI	008 024 053 070 086 194
DANSETTE	131
DANTAX	174 176 185 187 188

Brand List for TV

DATSURA	096 209
DAWA	008 086
DAYTON	024
DAYTRON	008 009 029 086 098
DE GRAAF	096 210
DECCA	008 018 053 086 126 184
DEITRON	008 086
DENKO	070
DENON	036
DENVER	008 086 185
DESMET	008 024 086 108 197
DIAMANT	008 086
DIAMOND	070 201
DIGATRON	008 086
DIGILINE	008 086
DIGITOR	008 086
DIGIVISION	107
DIK	008 086
DIXI	008 023 024 053 086 128 197
DOMEOS	200
DORIC	205
DTS	024
DUAL	008 053 086 107 205 210
DUAL TEC	053
DUMINT	129
DUMONT	018 027 029 053 129 195 197 198
DUNAI	210
DUX	008 086
D-VISION	008 086
DYNATECH	053
DYNATRON	008 086

[E]

EB TELECOM	095
ECTEC	089
ELBE	008 053 086 107 112 119 174 184 208 210 213
ELBE-SHARP	184
ELCIT	129 184 197 210
ELECTROBAND	066
ELECTROHOME	088 096 113
ELEKTA	008 024 070 074 086
ELG	008 086
ELIN	008 024 086 107 198 199 205 210
ELITE	008 042 054 086 096 108
ELMAN	129
ELTA	024 070
EMERSON	008 009 029 039 041 057 060 061 062 063 064 065 066 071 073 074 083 086 107 174 176 195 196 197 210
EMPEROR	074
ENVISION	005
ERRES	008 086
ESC	008 053 086
ESTELE	210
ETRON	008 024 086 210
EURO-FEEL	053 070
EUROMANN	008 053 070 086 174
EUROPA	008 086
EUROPHON	008 053 086 129 184 210
EXCEL	008 086
EXPERT	210
EXQUISIT	008 086

[F]

FAGOR	008 086
FAMILY LIFE	008 086
FENNER	024
FERGUSON	008 086 107 194 198
FIDELITY	008 052 070 086 087 094 107 131 210
FILSAI	053
FINLANDIA	018 096 107 173 207 210
FINLUX	008 018 053 061 086 103 112 123 126 129 160 161 162 163 170 173 178 179 181 182 183 184 185 186 187 188 195 196 197 198 199 210
FIRST LINE	008 018 024 052 053 086 096 107 111 112 129 187 200 205 210
FISHER	018 039 043 053 096 098 107 128 174 197 198 205 210

Brand List for TV

FLINT	008 018 070 086 189
FNR	129
FORMENTI	008 086 093 108 176 196 197 210
FORMENTI-PHOENIX	162 179
FORTRESS	197
FRABA	008 086 174
FRIAC	008 024 086 129 174
FRONTECH	024 044 053 070 109 205 210
FUJITSU	008 024 018 053 061 086 107 125 129 210
FUJITSU GENERAL	024 053 210
FUNAI	049 061 062 070 111 131 200
FUTURE	008 086
FUTURETECH	062

[G]

GALAXI	008 086 107 129 210
GALAXIS	008 086 123 129 152 174
GALERIA	024
GBC	024 109 162 210
GE	001 003 010 011 014 029 030 035 060 074 082
GEANT CASIONO	210
GEC	008 018 053 086 105 107 113 126 184 205 210
GELOSO	024 109 162 210
GENERAL TECHNIC	024
GENESIS	024
GENEXXA	008 024 044 054 086 131 210
GIANT	053
GIBRALTER	005 027 029
GO VIDEO	016
GOLDFUNK	200
GOLDSTAR	005 006 008 009 015 020 021 024 029 034 053 060 070 086 103 107 113 125 150 174 185 210 212
GOODMANS	007 008 018 024 053 061 070 086 133 146 182 184 194 200 212
GORENJE	174
GPM	054
GRADIENTE	008 012 015 048 080 086
GRADIN	108
GRAETZ	008 044 086 107 109 204 210
GRANADA	008 018 053 086 096 099 125 181 184 196 204 206 207 210
GRANDIN	008 024 074 086 187 188 189 200 210
GRONIC	053 129 210
GRUNDIG	008 024 050 058 069 086 137 170 174 195 196 202
GRUNPY	061 062

[H]

HAIER	070 201
HALIEAX	070
HALIFAX	053 070
HALLMARK	060
HAMPTON	053
HANSEATIC	008 024 053 074 086 087 107 108 109 111 112 162 174 180 197 205 209 210 213
HANTAREX	008 024 086 129 184
HANTOR	008 086
HARLEY DAVIDSON	061
HARMAN KARDON	013
HARVARD	062
HARWOOD	008 024 086 131
HAUPPAUGE	008 086
HCM	008 024 053 070 074 086 123 131
HEDZON	008 086
HEMA	024 053
HEMMERMANN	107 205
HIGHLINE	008 070 086
HINARI	007 008 024 054 061 070 086 096 210
HISAWA	074 189
HIT	197
HITACHI	006 007 008 015 018 029 031 032 036 038 040 044 053 056 086

Brand List for TV

HITACHI	087	092	098	099	100
	101	104	105	106	107
	109	113	114	115	116
	117	125	158	167	181
	182	183	184	199	205
	206	207	210	211	
HITSU	024	189			
HMV	197				
HORNYPHONE	008	086			
HOSHAI	189				
HUANYU	052				
HUSPI ELEKTRONIK	123				
HYGASHI	053				
HYPER	024	053			
HYPER VISION	107	134			
HYPSON	008	053	070	074	086
	187	188	189		
HYUNDAI	008	086			

[I]

IBERIA	008	086			
ICE	008	024	053	070	086
ICES	054				
ICT	008	086			
IMPERIAL	008	086	091	102	107
	109	112	123	174	196
	205	210			
INDESIT	058				
INDIANA	008	086			
INFINITY	013				
INGEKEN	139				
INGELEN	044	107	187	210	
INGERSOLL	024				
INNO HIT	008	018	024	053	074
	086	125	129	184	196
	212				
INNOVA	008				
INNOVATION	008	086			
INTEQ	027				
INTERACTIVE	008	086	087	107	174
	197	210			
INTERBUY	008	024	070	086	087
INTERFUNK	008	044	086	087	105
	107	109	168	174	177
	197	205	210		
INTERNAL	008	086			
INTERVISION	008	024	053	070	074
	086	129	154	174	176
	189	210			
IRRADIO	008	024	086	179	196
	212				
ISUKAI	008	054	074	086	189
ITC	053				
ITS	008	024	070	074	086
ITT	044	061	096	098	107
	109	173	181	182	204
	205	210			
ITT-NOKIA	061	096	107	168	173
	177	181	182	185	186
	204	205	210		
ITV	008	070	086		

[J]

JACSON	126				
JBL	013				
JCB	137				
JEC	042	194			
JMB	008	086			
JOCEL	203				
JUBILEE	008				
JVC	007	012	047	064	123
	185				

[K]

KAISUI	008	024	052	053	054
	074	086	189		
KAMP	052				
KAPSCH	044	105	107	109	198
	210				
KARCHER	008	070	074	086	129
	174	210			
KATHREIN	008	086	087		
KAWASHO	052	076			
KB ARISTOCRAT	210				
KEC	062				
KENDO	008	086	087	109	110
	112	129	174	180	208
	210				
KENNEDY	162	210			
KENWOOD	005	029	199		
KINGSLEY	052				
KITON	008	086			
KLH	125				

Brand List for TV

KLOSS	002
KMC	034
KNEISSEL	008 086 112 174 208 213
KOLSTER	008 086 129 205
KONIG	007 008 024 025 044 051 058
KONKA	008 086 123 187
KORPEL	008 086
KORTING	108 174 197
KOSMOS	008 086
KOTRON	070 131
KOYODA	024
KTV	005 009 053 062 065 066 073
KUBA	205 210
KUBA ELECTRONIC	107 205 210
KURO	209
KYOSHU	070 123 131
KYOTO	053 210

[L]

LASAT	174 176
LEADER	024
LECSON	008 086
LEMAIR	112
LENCO	008 024 070 086 133 156 198 210
LENOIR	024
LEVIS AUSTRIA	008 086
LEYCO	008 018 070 086 111 125
LG	008 015 024 029 053 086 107 144 174 185 187 210 212
LIESENK &TTER	008 086
LIESENKOTTER	008 086
LIFETEC	008 024 070 086 087 146 200
LLOYD'S	024
LLOYTRON	006
LOEWE	008 013 086 087 146 147 171 172 174 175 190 197 208 213
LOGIK	008 020 026 086 201
LOGIX	200
LUMA	008 024 086 109 112 208 210
LUMATRON	008 053 070 086 107 208 210
LUX MAY	008 024 086
LUXMAN	015
LUXOR	053 058 061 092 096 104 107 109 125 167 173 177 181 182 183 186 205 206 210 211 212
LXI	010 013 027 029 039 042 060 096

[M]

MAGNADYNE	107 129 162 184 197 210
MAGNAFON	129 179 184 196
MAGNASONIC	096
MAGNAVOX	000 002 004 005 007 008 013 061 067 068 086 113
MAGNUM	008 086 187 188
MAIDSON	008 086
MAJESTIC	026
MANDOR	070
MANESTH	008 053 070 086 108 110 194 210
MANHATTAN	008 086 146 200 210
MARANTZ	005 008 013 086 087 131
MARELLI	197
MARK	008 024 053 086 187 188
MASUDA	008 024 053 070 086
MATSUI	008 018 024 025 041 053 086 096 102 107 110 184 189 194 205 210
MATSUSHITA	011 079
MC MICHAEL	113
MEDIATOR	008 086
MEDION	008 086 087 200 201
MEGATRON	022 029 036 060 099
MEI	066
M ELECTRONIC	008 024 044 053 086 087 107 112 173 182 183 198 199 205 210
MEMOREX	015 016 024 026 029 034 037 039 060 070 079 096

MEMPHIS	018 024 125
MERCURY	008 024 086
METZ	008 086 146 197 200
MGA	005 008 029 033 037 060 086 198
MICROMAXX	008 086 146 200
MIDLAND	006 009 010 011 027 035
MINATO	008 086
MINERVA	058 184 195 196
MINOKA	008 086 131 207
MINUTZ	001
MITSUBISHI	007 008 029 030 033 037 058 060 086 087 096 197
MITSURI GENERAL	210
MIVAR	052 053 170 174 184 196 212 213
MONACO	024
MORGAN'S	008 086
MOTION	196
MOTOROLA	014 030
MTC	005 015 016 029 052 066 087 107 174 205 210
MULTISTANDARD	129
MULTITEC	008 086 146 176 200
MULTITECH	008 024 052 053 062 070 086 109 129 174 176 196 205
MURPHY	018 198 210
MUSIKLAND	008 086
MULTIMEDIA	132
MYRYAD	008 086

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NAD	029 042 046 060 107 210
NAIKO	008 086 185
NAKIMURA	008 086
NAONIS	109 210
NATIONAL	058
NEC	005 007 008 015 024 029 048 053 086 189
NECKERMANN	008 053 069 085 086 087 092 109 112 123 174 197 205 210
NEI	008 086 210
NESCO	061
NETSAT	008 086
NEWFUNK	008 024 074 086 187
NEW TECH	008 024 053 086
NIKKAI	006 008 018 024 042 052 053 054 070 086 125 194
NIKKO	005 010 019 027 029 039 042 060
NISATO	089
NOBLEX	081
NOBLIKO	129 179 195 196
NOKIA	061 070 096 098 104 105 106 107 109 153 173 181 182 183 185 186 204 205 207 210
NORDIC	053
NORDMENDE	008 086 187 210
NORFOLK	210
NORMEREL	008 086
NOSHI	028
NOVATRONIC	008 086 199
NTC	019
NURNBERG	107 210

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OCEANIC	044 096 107 109 111 177 181 182 210
ODEON	070
OKANO	008 018 024 070 086 174
OMEGA	070
ONWA	062 129
OPERA	008 086
OPTIMUS	030 039 045 046 079
ORBIT	008 086
ORION	008 024 041 057 061 070 083 086 107 108 110 111 129 131 184 187
ORLINE	008 086
ORMOND	008 146 200
ORSOWE	184
OSAKI	006 008 018 053 054 070 086 125 131
OSIO	008 086 212
OSO	054
OSUME	006 008 018 086 125

Brand List for TV

OTTO VERSAND	007 008 024 053 069 074 085 086 087 092 098 103 107 108 109 110 111 162 180 184 205 209

[P]

PACIFIC	008 086
PAEL	179
PALLADIUM	008 053 086 109 112 123 174 197 205 210
PALSONIC	008 053 070 086 131 201
PANAMA	008 024 053 070 086
PANASONIC	008 010 011 012 013 014 016 020 030 036 037 039 042 044 045 055 058 060 078 079 086 107 109 184 210
PANAVISION	008 086 112
PATHE CINEMA	052 108 174 205 210 213
PAUSA	024
PCE/PEC	042 096 098
PENNY	001 003 005 006 009 010 011 015 016 021 022 028 029 035 042 060
PERDIO	008 018 074 086 210
PERFEKT	008 086
PHASE	006
PHILCO	000 002 004 005 008 013 029 036 067 068 083 086 123 162 174 196 197 210
PHILEX	210
PHILHARMONIC	053
PHILIPS	000 001 002 003 004 008 009 013 027 028 029 086 087 113 125 138 140 197
PHOENIX	008 018 086 174 176 197 210
PHONOLA	008 086 108 197
PILOT	005 008 009 029 086 203
PIONEER	008 044 046 086 087 107 174 176 180 210
PLANTRON	008 024 070 086
PLAYSONIC	053 187
POLICOM	058 107 129 195 197 210
POLYRON	070
POPPY	024
PORTLAND	009 019 029
PRANDONI PRINCE	107 109 179 184 196
PRECISION	053
PREMIER	024
PRIMA	024 042 070 096 131
PRINZ	018 107 125 205 211
PRISM	011
PROFEX	024 107 196 210
PROFI	024
PROFITRONIC	008 086 129
PROLINE	008 018 086 112
PROSCAN	005 010
PROSONIC	008 086 174 187 200
PROTEC	109 129
PROTECH	008 024 053 070 074 086 123 176 200 205 210
PROTON	022 029 060
PRO-VISION	008 086 146
PULSAR	027 029 113 125
PYE	008 086 131 197 205
PYMI	024

[Q]

QUASAR	011 014 024 045 079
QUELLE	008 024 025 053 070 085 086 087 098 103 107 109 110 111 160 161 168 170 173 177 178 179 195 198 199 200 205 212
QUESTA	007

[R]

R-LINE	008 086 210
RADIALVA	008 086 210
RADIO SHACK	005 006 008 009 010 015 029 039 045 060 062 086 096
RADIOLA	008 053 086
RADIOMARELLI	008 086 184 197
RADIOTONE	008 024 070 086 123 131 174 180 200

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RADIX	098
RANK	195
RANK ARENA	007
RBM	195
RCA	010 011 028 029 030 035
REALISTIC	005 006 009 015 029 039 045 060 062 096
RECOR	008 086
RECTILIGNE	008 086
REDIFFUSION	107 173
REDSTAR	008 086
REFLEX	008 086 146 200
REKORD	159
REOC	187
REVOX	008 086 174
REX	044 070 075 109 112 210
RFT	018 070 086 128 174 180 197 213
RHAPSODY	052 065 066
RICOH	008 086
ROADSTAR	008 024 054 070 074 086 123 146
ROBOTRON	197
RODEX	008 086
ROWA	053 070 201 203
ROYAL LUX	131 174
RTF	008
RUKOPIR	008 086
RUNCO	005 027

[S]

SABA	044 105 107 109 197 184 210
SAGEM	074 139 189
SAISHO	024 025 041 053 070 110 184 210
SAIVOD	008 086 210
SAKIO	070
SALORA	044 092 096 104 107 109 125 164 165 166 167 168 169 177 184 191 192 204 205 206 207 209 210 211 212
SAMBERS	129 179 184 196
SAMPO	005 006 009
SAMSUNG	005 006 008 009 015 016 018 024 029 053 060 070 077 086 087 096 125 137 174 210 212
SAMSUX	009
SANDRA	052 053
SANSEI	082
SANSUI	008 083 086 189 202
SANTON	024
SANYO	007 008 018 024 025 039 043 053 086 096 097 098 125 126 161 174 176 198 204 209 210 213
SAVE	008 086
SBR	008 086
SCHAUB LORENZ	107 109 176 185 187 205
SCHNEIDER	008 053 054 070 086 107 136 146 153 157 162 187 200 205 210
SCIMITSU	029
SCOTCH	060
SCOTLAND	210
SCOTT	029 057 060 061 062
SEARS	010 013 015 029 039 042 043 049 060 061 096
SEG	007 008 024 053 070 086 128 129 146 196 200 205 208 210
SEI	008 041 086 129 184 197 205 210
SEI-SINUDYNE	008 086 107 109 110 111 129 184 197
SELECO	044 070 075 090 109 112 121 122 173 208 210
SEMIVOX	062
SEMP	042
SENCORA	024
SENTRA	024 042 194 205
SERINO	189
SHARP	007 009 030 045 184
SHINTOSHI	008 086
SHIVAKI	008 086
SHOGUN	029
SHORAI	061 111

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SIAREM	129	162	184	197	210
SICATEL	120				
SIEMENS	008	050	051	069	086
	107				
SIERA	008	086			
SIESTA	174				
SIGNATURE	026	042			
SILVA	008	086	107		
SILVER	007	008	061	086	107
	188	189	210		
SIMPSON	067	068			
SINGER	008	024	086	129	162
	197	210			
SINUDYNE	008	041	086	107	129
	162	184	197	205	210
SKANTIC	109	206			
SKY	008	086			
SKYMASTER	199				
SLX	200				
SOGERA	108				
SOLAVOX	006	008	018	044	086
	107	210			
SONIKO	008	086			
SONITRON	053	096	098	174	204
SONNECLAIR	008	086			
SONOKO	008	024	053	070	074
	086				
SONOLOR	044	074	096	107	210
SONTEC	008	024	086	174	
SONY	007	008	025	072	085
	086	129			
SOUND & VISION	008	086	129		
SOUNDESIGN	029	060	061	062	067
SOUNDWAVE	008	086	123		
SPECTRA	024	133			
SPECTRICON	022				
SQUAREVIEW	049				
SR2000	096				
SSANGYONG	024				
SSS	029	062			
STAKSONIC	024				
STANDARD	008	024	053	054	086
	108	146			
STARLITE	008	024	062	070	086
	131	210			
STENWAY	074				
STERN	044	070	075	109	112
	210				
STRATO	008	024	070	086	
STYLANDIA	053				
SUNIC LINE	008	086			
SUNKAI	008	086	110	111	189
SUNSTAR	008	024	070	086	
SUNWOOD	008	024	086		
SUPERLA	053	184			
SUPERTECH	008	024	086	107	
SUPRA	015	024			
SUSUMU	054				
SUTRON	024				
SYDNEY	053				
SYLVANIA	000	002	004	005	013
	067	068	088		
SYMPHONIC	049				
SYSLINE	008	086			

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TADNDY	125				
TANDBERG	107	112	208	210	
TANDY	018	030	044	053	054
	210				
TASHIKO	007	053	113	207	210
TATUNG	008	014	018	022	053
	086	125	184		
TCM	187				
TEAC	008	024	029	053	070
	074	086	087	107	123
	131	146	162	189	200
	201	202	203	205	
TEC	008	024	053	086	107
	133	210			
TECHLINE	008	086	129	200	
TECHNEMA	108				
TECHNICS	010	011	027	079	
TECHNISAT	008	086	130	210	
TECHNOL ACE	061				
TECHWOOD	011	015	022		
TECHNIMAGEN	008				
TEDELEX	008	024	053	086	096
	185				
TEIRON	024				

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TEKNIKA	009 013 015 016 019 026 029 037 061 062 067
TELECO	135
TELECOR	008 053 086 210
TELEFUNKEN	008 015 086 176
TELEGAZI	008 070 086 210
TELEMEISTER	008 086 108
TELESONIC	008 086
TELESTAR	008 086 131
TELETECH	008 024 086 200
TELETON	007 053 067 109 205 210
TELEVIDEON	108 210
TELEVIEW	008 086
TELEXA	129
TEMPEST	008 024 086
TENNESSEE	008 086
TENSAI	008 024 053 054 086 103 108 111 188 198 199 210
TENSON	024
TESLA	135
TEVION	008 086 200
TEXET	024 052 053 054
THOMAS	113 125
THOMSON	008 058 086 145 205
THORN	008 018 042 085 086 087 097 098 107 113 115 126 127 194 198 207
THORN-FERGUSON	107 194 198
TMK	015 029 041 060
TOKAI	008 024 053 086 125 200 210
TOKYO	194
TOMASHI	074
TOSHIBA	007 016 039 042 053 059 096 098 129 170 194 195
TOSONIC	066
TOTEVISION	009
TOWADA	053 109 129 205
TOYODA	024
TRAKTON	070
TRANS CONTINENS	008 053 086 200
TRANSONIC	008 070 086 087 189 201 203
TRIAD	008 086
TRIDENT	053 184
TRISTAR	070
TRIUMPH	008 041 059 086 173 184
TSOSCHI	074
TV TEXT	087
TV TEXT 95	008

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UHER	008 086 108 123 129 174 176 196
ULTRA	089 125
ULTRAVOX	008 086 129 162 197 210
UNIC LINE	008 086 181 189 205
UNITED	008 086 187 188
UNIVERSAL	001 003
UNIVERSUM	008 024 053 070 086 087 107 112 123 173 174 181 182 183 186 195 196 198 199 200 205 208 210 212
UNIVOX	008 086 197 210
UTAX	210

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VECTOR RESEARCH	005
VESTEL	008 053 086 146 200 210
VEXA	008 024 086
VICTOR	012
VIDEOSYSTEM	008 086
VIDEOLOGIQUE	053
VIDEOTECHNIC	053
VIDEOTON	104 206 210
VIDIKRON	013 129
VIDTECH	007 029 060
VISA	007 008 024 025 044 058
VISION	008 053 086 108
VISTAR	107
VORTEC	008 086
VOXSON	008 044 086 109 123 196 197 210
VTQ	128

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WALTHAM	008	053	086	104	109
	123	200	206		
WARDS	000	001	003	004	005
	013	015	026	029	035
	042	045	060	061	068
WATSON	008	024	086	108	146
	200	210			
WATT RADIO	107	129	162	205	210
WEGA	007	008	086	197	
WEGAVOX	008	024	086		
WELTBLICK	008	053	086		
WESTON	008	086			
WHARFEDALE	008	086			
WHITE WESTINGHOUSE	008	052	086	096	108
WINDSOR	200				
WINDSTAR	074				
WINDY SAM	008				
WINTEL	187				
WORLD-TECH	133				

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XRYPTON	008	086			

[Y]

YAMAHA	005	029			
YAMISHI	008	053	074	086	189
YOKAN	008	086			
YOKO	008	024	053	070	086
	133	174	204	209	
YORK	098				

[Z]

ZANUSSI	053	075	109		
ZENITH	019	026	027		
ZENOR	204				
ZONDA	022				

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